





## Colleges await final decision on merger

by David Ifencke

Lord Crowther-Hunt, Minister of State for Higher Education, is shortly to announce final decisions on the future of two Weir Midlands colleges of education following a "fact-finding" tour of the colleges last Friday.

The minister has decided to investigate whether the large Dudley College of Education should be merged with Wolverhampton Polytechnic or with Dudley College of Further Education.

The staff of both college and polytechnic would welcome a merger since it would provide a comprehensive faculty of education with the existing Wolverhampton Technical Teachers' College and Wolverhampton Day College in an enlarged polytechnic.

The Labour-controlled Dudley council wishes to retain the college so that another institute of further and higher education can be established.

The minister also visited the West Midlands College of Education, Wulwell, which was one of the first colleges to offer Council for National Academic Awards degrees, and is now one of the last large colleges which has had no final decision about its future. It hopes to remain independent and to offer, like Birmingham and Edgbury Hill colleges of education, courses outside teacher training.

Liverpool Council's further education sub-committee has established a working party to investigate the effects on local schools and colleges of the C. F. Mott College of Higher Education transferring its students from Liverpool to Lancaster universities.

The committee is understood to have no objection to the change but is concerned about how such changes will affect the future of other colleges which will remain in Liverpool University.

At the Universities Council for the Education of Teachers annual conference at York University earlier this month consideration was given to the council's role following the reorganisation of teacher training. Among the guests was Mr. Hugh Harding, under-secretary at the Department of Education and Science.

St Peter's College, Selby, one of four Anglican colleges threatened with closure by the Church of England Board of Education, has submitted a four-page appeal to the Department of Education and Science outlining its case for survival.

It is critical of the Board of Education for failing to meet the need for a "regional spread" of teacher training places in England and Wales.

It says that closing St Peter's "would mean that members of the Established Church, in the second place, would be deprived of their right to train for the teaching profession to a college of their own denomination, a right retained (at Newman College) for Roman Catholics and members of the free churches (Weedhill College)."

## Thatcher prefers on the job training

British industry had more need of managers who could make firms pay than graduates of university business courses, Mrs Thatcher, leader of the Opposition, told the annual meeting of the Business Graduates Association in London last week.

She said: "There are a hell of a lot of managers who are not professionally trained who have made a success of business. There is a shortage of people who can start up a business and make it pay and employ other people. Good management is not made by possession of a university degree."

Mrs Thatcher was the principal guest at the association's annual conference, which was attended by representatives from the London and Manchester Business Schools and other postgraduate courses.

Deciding the idea that Britain was less dominated, Mrs Thatcher said the educational system should be based on the business world. The grammar schools should be replaced to ensure that universities continued to take their students from all sorts of social backgrounds.

## Charter on admission for handicapped sought



Member of a party of handicapped Open University students on a visit to Kame earlier this year.

by Jane Feinmann

Every British institution of higher and further education is to be asked to formulate and publish a policy on the admission of and provision for handicapped students. The aim is to stop handicapped students being prevented from taking courses for which they are qualified.

The request will be made by the National Bureau for Handicapped Students, which passed a resolution to this effect at its first annual general meeting, held in London last week. The NBHS was formed a year ago under the guidance of Mr Denis Coe, their present chairman and a member of the Warnock Committee, to assist handicapped students in tertiary education.

It hopes to help integrate handicapped people into normal society instead of isolating them in beautiful houses in the country.

The NBHS is aware that its first step in this direction is a cautious one and it also realizes that it has no direct influence over the institutions involved.

"We do appreciate that it might be beyond the power of a single institution, however well intentioned, to ensure that any handicapped student could follow any course at studies," Mr Colin Low, a lecturer at Leeds University and a member of the NBHS steering committee, said last week.

Bradford University, during a preliminary

survey, had already expressed doubts as to the feasibility of this aim.

"What we hope is that qualified handicapped students will be able to find a place somewhere in tertiary education for every possible course of study. This will require considerable organisation but it is possible that NBHS could act as a clearing house, since the individual institutions have published policies on the subject."

Mr Low paid tribute to his own university which had made huge strides in effecting integration of handicapped students since last year. The vice-chancellor, had pledged that there would be no unjustifiable prejudice against handicapped students.

The problems facing handicapped students are primarily those of access, but the NBHS emphasises that the attitude of the authorities and the total environment "are equally important; Mr Michael Oliver, a postgraduate student at King's College London, is severely handicapped and permanently in a wheelchair, believes the attitude of the authorities had been a major member of staff was designated as a mediator between students and administration.

About a year ago, for instance, the bookshop in the Kent University library was moved from the basement to the mezzanine floor, which was inaccessible to wheelchair, a result of ignorance on the part of the authorities but it took Mr Oliver the best part of a year to contact the various committees and have the move reversed.

## Students 'lost £1m' on pop concerts

Plans for a secret ballot for the election of the national executive, similar to the National Union of Mineworkers' "pick-and-balls", and a scheme to stop an estimated £1m loss on pop groups at students' unions over the past two years, will be the main items at the National Union of Students' winter conference next month.

More predictable debates will be held on plans for another campaign on education cuts and on the Government's economic policies and housing, including a new campaign against the proposed criminal trespass law, which will make quoting more difficult.

The proposals for electoral reform look likely to be the most sought issue, since no fewer than 25 amendments have been put forward against the motion, including one headed by the NUS executive.

The reform proposals are supported by 10 universities and university colleges, including the Cambridge, Manchester and Birmingham universities students' unions. They are supported by two polytechnics,

two art colleges, three colleges of education, two colleges of further education, a college of technology and an agriculture college.

The proposals say that the majority of students feel alienated from the union and cannot participate in elections, and that since the executive is elected solely by delegates to the Easter conference.

The main opposition to the proposals is in an amendment by the NUS executive with the support of nine universities, including Oxford and Sussex, two polytechnics and two colleges of further education.

The amendment says that the NUS is already one of the most democratic organizations of its kind and that elections would reduce the accountability of its executive to nothing.

It adds that national elections by secret ballot would be undesirable, expensive and impracticable and would make candidates who could muster massive publicity resources and "curry favour with the national media". Reforms would "replace real democracy with for-

mal, passive democracy and foster bureaucracy and coercion in union affairs".

The amendment agrees to the establishment of a constitutional review committee and to improve the NUS's information services, but contains no proposals of reform for discrediting the union and calls for a "psychiatrist to examine the movers of the motion".

The hiring of pop groups, and subsidies which are believed to have totalled £1m to pay for the groups, are condemned in a report on entertainment by the union's committee on the arts.

The report calls for a new entertainment department to be set up at NUS headquarters so it can advise social secretaries on band prices, tour arrangements and budgetary control.

"For less than £11,000 we can start to redress over £500,000 into the overall work of the student movement", it says.

## News in brief

### £150,000 for plant classification

Ecologists from four universities have received a £150,000 grant from the Nature Conservancy Council to produce a comprehensive classification of plants in Britain.

Under the chairmanship of Professor C. D. Pigott, head of the department of biological sciences at the University of York, the five-year project will be based on the Universities of Lancaster, Cambridge, Exeter and Manchester. It will result in the publication of a dictionary of vegetation.

### New Birmingham M.Lit

Birmingham University senate has approved a new degree of Master of Letters in the faculty of arts. It is intended to fill an educational gap between the BA and the PhD.

A student must complete two full academic years or approved part-time periods of study and write a thesis of not less than 80,000 words before gaining the M.Lit.

### English lessons required

Almost 45 per cent of overseas students starting courses at Birmingham University this term do not have an adequate command of the English language. After English tests administered to both undergraduate and postgraduate students it was discovered that 140 students needed to attend English classes.

### £771,670 for research

The University of East Anglia received £771,670 in research grants in 1974-75. Of that, chemistry took £25,464 and biological sciences £51,512. The Centre for East Anglian Studies received £69,724 and the Centre for Applied Research in Education £55,228.

### The library show

Newcastle Polytechnic's library has launched a three-year project to investigate how the collection of books and journals is used. The project, which is funded with a grant of nearly £50,000 from the British Library's research and development department, will take the form of a travelling workshop.

It will visit some eight different colleges and polytechnics to provide information on the project will be supervised by the Association of Special Libraries and Information Bureaux.

### Teacher training drop

Teacher training applications have dropped again this year by 26 per cent because of growing unemployment problems, facing teachers.

Figures from the clearing house for teachers show that applications are now running at the lowest level for four years.

Last week there were 2,267 applications from men and 12,171 from women. This compared with 2,800 and 16,013 respectively last year.

## Researchers may have to pay to use computers

by Alan Cane

University researchers who use computers provided by the Computer Board will have to pay in future. This is almost certain to be agreed at a symposium starting today in Buxton.

Among those attending will be Sir Frederick Dainton, chairman of the University Grants Committee, Sir Arthur Armitage, chairman of the Committee of Vice-Chancellors and Principals, and Sir Sam Edwards, chairman of the Science Research Council.

The future of the Computer Board, which has responsibility for providing computing facilities in British universities, is on the agenda and some fear that proposals which suggest merging the board with the UGC or, alternatively, disbanding it and placing responsibility for British university computing in the hands of the SRC will gain ground.

A spokesman for the Computer Board said this week that no firm decision would be taken at the seminar. The issue would be shelved until a meeting next January. No expected firm decisions to emerge by March.

It seems clear that charging for computer services will be introduced in order to find out how much money should be provided for computer services in comparison with all other university facilities.

The board is believed to have created a scheme involving: ● all research computing to be charged at 10 per cent economic cost; ● computing for teaching purposes to be free; ● all charges to be paid by the user department—and not to be passed on to research councils in the case of projects supported by research councils.

One paper argues: "The possibility of collaboration in networks of computers, both between departments and between research councils, offers an opportunity of mitigating the effects of recent economic measures."

On finance the symposium will be told that the board must spend at least £90 a year or today's prices to maintain university computing at its present level. The board is concerned about the lack of collaboration between the universities and International Computers Ltd, Britain's major computer company.

## Overseas students cost up to £75m a year, Tory says

by Frances Gibb

Overseas students in further and higher education are costing the British taxpayer between £45m and £75m a year, Dr Keith Hampson, secretary of the Conservative parliamentary education committee, claimed this week.

Speaking at Otley in Yorkshire, he said: "The average figure for them University this term of £1,000 have an adequate command of the English language. After English tests administered to both undergraduate and postgraduate students it was discovered that 140 students needed to attend English classes."

He called on the Government to set up an urgent review of all fees to consider putting them on a cost-related basis. "In the light of the stringent economies being forced upon us, we cannot afford to ignore the 54 per cent increase in overseas students in higher and further education that occurred between 1971 and 1974, which is still growing proportionately."

The gap between fees paid and actual cost of educating a student, particularly in engineering and technology for which the majority of overseas students opt, had grown to ludicrous proportions, he said.

The cost of a university postgraduate engineering course, for example, was about £4,000 of which a student paid about £320. "There is no cost for keeping fees at a level which means in practice that students are paying only 10 to 20 per cent of the cost of the education they are receiving."

He suggested a system of fees related to the true costs of courses

as exists in the colleges of education. Help for deserving students from developing countries could be provided only by the Ministry of Overseas Development's students fees award, which would have to be expanded well beyond the current £0.5m budget.

Too many awards went to students already sponsored by their governments, he said. "The average figure for them University this term of £1,000 have an adequate command of the English language. After English tests administered to both undergraduate and postgraduate students it was discovered that 140 students needed to attend English classes."

The fastest-growing group of overseas students was from the Middle East, who were not only the most expensive, but also the most numerous, he said.

At present there were about 53,164 overseas students in further and higher education in Britain. The rate of increase from 1971 to 1974 was 54 per cent, which is still growing proportionately.

Some departments had acute over-balancing problems. At the University of Manchester Institute of Science and Technology, 70 per cent of postgraduates were from overseas. At Imperial College, London, overseas students formed between 60 and 85 per cent of the student body.

Mr Mulley said: "What we particularly want is to do more work on curricula research and to get some pilot schemes of a practical kind as soon as we can."

He accepted the desirability of closer connexion between the universities of science and technology and the many schools and authorities were pursuing it. His powers of enforcement were limited.

During the debate Miss Janet Fookes (Plymouth, Devon, C), spoke about the problems of standards and literacy.

There were many reasons for the decline in these areas, she said. One lay in teachers who had not been properly trained.



## Commons hold brief debate on 16-19s

Additional provision for the 16 to 19-year-old group, as promised in the Queen's Speech, was only briefly touched on during the Commons debate on education on Monday. Attention was primarily devoted to the Government plans to compel local education authorities to introduce comprehensive education.

The Government's commitment to help this age group was commended by Mr Norman St John-Stevas, chief Opposition spokesman on education. Lord Hailsham, however, said that they knew that the way to hell was paved with them. The Opposition looked to the Secretary of State to nullify the Government's plans to review the organization and disposition of further education in schools and colleges.

Mr Mulley, Secretary of State for Education and Science, said they wanted to increase the opportunities for about 300,000 boys and girls who entered employment each year and who received little or no further education and training.

It was not simply a quantitative problem. As well as further provision of places and courses, they needed new resources and concepts, new curricula and, above all, the closest cooperation between educational and training interests.

This was what the Government had been engaged on for some time and he hoped that a statement on this matter would be made shortly and that they would be able to have consultations with all those involved, including education and training, employers, employers and trade unions.

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## ARC promises to continue support regardless of funds

The Agricultural Research Council promised this week to maintain its present level of support for university research even if next year's funds fail to reach expectations. Dr W. M. Henderson, ARC secretary, warned however that if the council was forced to pay arrears for research in universities, fewer projects could be accepted.

For the first time there were more good project applications than funds to support them, he said, and the council this year turned down about 10 per cent of all projects passed on scientifically sound because of lack of funds.

Introducing the council's annual report, Dr Henderson warned that it was becoming increasingly difficult to maintain the "right climate" for good, practical research. He said that transfer of funds to the Ministry of Agriculture, Fisheries and Food for use in commissioning ARC research work had taken place without serious consequences. Nevertheless, the general shortage of money had inhibited progress.

The annual report says that as most agricultural research is now seriously being run, it may not be possible to make up lost time. "We are now benefiting from research done 20 or more years ago."

One example, announced this week was a new variety of Cox's Orange Pippin, a dessert apple named "Sutton" with improved qualities and appearance. It is the result of crosses made in 1955 between Cox and Court Pendu Plat.

Of its total income last year of about £34m, the ARC spent most on animal health, closely followed by protection of crops against weeds, pests and pathogens and soil science. It plans for a growth of just under 1 per cent in its budget next year, but without knowledge of what the Government will give it.

The European Economic Community has placed four research contracts with the council. Dr Henderson emphasized that such developments were inhibited by "attribution" procedures, where money supplied by the EEC from the common fund is considered as the Ministry of Agriculture money and deducted from the country's contributions to ARC research. He said these procedures were closer in attribution than attribution.

Second, universities are being offered a new way out in the planning of initial teacher-training but for the whole of higher education to the public sector.

Third, the CLEA has stated that it will welcome any suggestions from the universities in ways in which their essential academic interests can be safeguarded. "It is difficult to see how an advanced and multi-executive body like a FEACR can threaten anyone or anything," the article says.

The THES editorial also argued that if universities were part of the new advisory bodies, they would be accepting implicitly that universities should be part of any new regional machinery for higher education developed in England and that such a union would have profound implications for the universities.

"Come off it, THES", the article counters. "What would the dais say if they were not brought into these regional higher education arrangements?"

## Leeds set for £1m surplus

Leeds University may have a surplus of up to £1m at the end of the current session, when it had expected to be in the red by £800,000.

This rapid recovery from the brink of bankruptcy is being attributed to stringent economies in the past year, the Government's £6 million and the fall in the rate of inflation.

Mr Edmund Williamson, the bursar, believes that many universities will be in a similar situation. "But the University Grants Committee is well aware of it and this is likely to be reflected in the grants for 1976-77," he said.

The projected £1m surplus was announced at a meeting of Leeds University's finance committee. To April a deficit of £335,000 was estimated for the current session. Now the Government's anti-inflation policy together with additional economies made inside the university bank like turning the loss into a surplus of £300,000. Added to a surplus of £480,000 accumulated at the end of last session this leaves the university £1m to the good.

The full text of Mr Crosland's lecture "Social Democracy in Europe" is available in Fabian tract 236 published by the Fabian Society, 11 Durrant Street, London, S.W.1.

## Crosland joins the critics

Mr Anthony Crosland, Secretary of State for the Environment, has called for a further central over public spending on higher education. He claims that higher education is a regressive form of social expenditure and should be restrained.

Mr Crosland's pointedly higher education as a low priority for expenditure when he gave a lecture in Costa Rica recently on "Social Democracy in Europe". The practice of public spending, he said, needed to be reformed. In particular higher priority should be given to social expenditure which was unambiguously progressive, like cash benefits to the old, sick and disabled.

He added that regressive expenditure should be restrained and higher education as an example. Public expenditure, said Mr Crosland, would only play a progressive role in Britain when the reforms were made.

The full text of Mr Crosland's lecture "Social Democracy in Europe" is available in Fabian tract 236 published by the Fabian Society, 11 Durrant Street, London, S.W.1.

## 'Intimidation' lecturer wants transfer

Mr Dorian Duggan-Ryan, the non-union lecturer in economics at the Polytechnic of North London who last month claimed to be the victim of an intimidation campaign, has applied to transfer from the polytechnic's business studies department.

The move, disclosed this week by Mr Tam Roberts, an assistant director of the polytechnic, comes after a successful appeal by Mr Duggan-Ryan for an internal inquiry into his case. In claims he was forced to give up his leadership of the polytechnic's Higher National Diploma in business studies, he said, he was intimidated within the department. Mr Roberts revealed that talks had taken place between himself, Mr W. J. F. Jenkins, head of the department, and Mr Duggan-Ryan. As a result Mr Duggan-Ryan had returned to his teaching duties.

## NEXT WEEK

The SSRC: ten years on. Guide to political groups in the NUS

Profile of Gwent College. Trends in university philosophy

Professor Sidney Pollard reviews The Age of Capital by Eric Hobsbawm

Rene Thom on catastrophe theory

## THES Christmas competition

After the success of our Christmas competition last year, the THES is once again offering six prizes for short parodies of features that appear in the paper week by week.

Our readers this year are invited to submit 400-word parodies in the following categories:

- A book review
- A fragment of Don's Diary
- Their worst student essay of the year
- The next speech by Lord Crowther-Hunt
- Three prizes of £20 and three of £10 will be awarded to the most entertaining entries. Any other contributions that are printed will be paid at our normal rates.

Entries should reach The THES by December 12, marked "Competition". Our address is: The THES, P.O. Box 7, New Printing House Square, Gray's Inn Road, London WC1X 8EZ.



## Government told 'gloves off over devolution'

The Government was delaying devolution because a Welsh assembly would not back its policy of reducing public spending, a student conference was told at the weekend. But students should refuse to accept this. They should fight the Government and force it to honour its election promises, Mr. Alistair Stewart, the deputy president of the National Union of Students, told the NUS Wales conference at Aberystwyth. Mr. Stewart, who is chairman of NUS Wales, said the Government was trying to "gild the debate on devolution but it was the job of students to see that this did not happen."

The conference agreed to launch a massive campaign around the Welsh colleges to make sure that the issue was kept alive and discussed fully by all students. NUS Wales is already committed to supporting the transfer of power in the principle and wants every facet of education, including the University of Wales, to come under the direct control of an elected assembly.

Mr Stewart said: "We must make it clear to the Government that the gloves are off and they are in for a real fight."

## 33 per cent grant rise sought

The National Union of Students is to demand a 33 per cent increase in student grants and an end to the parental means test, Mr. Alistair Stewart, deputy president of the union and convener of the NUS national grants campaign, has revealed.

Speaking at the NUS Wales conference this week Mr Stewart said the NUS was planning to campaign for an increase in student grants from the present £740 a year to £985. The union, he said, would also be demanding an end to discretion-

ary grants and the parental means test, which was forcing many families to find money they could not afford.

Mr Stewart said that the size of the demand had not yet been formally agreed but he claimed that the campaign would be announced after a special NUS meeting. "It is a high figure but it is the one we must go for. To seek less would mean us negotiating a drastic drop in living standards for a great many students," he said.

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Lord Anson, Provost of University College London, unveils a Greater London Council plaque on the former house of John Maynard Keynes in Gordon Square, London. Lord Keynes lived in the house from 1916 until his death in 1946.

## Warwick council supports student grants campaign

by David Walker

Strong support for the student campaign for increased grants came yesterday in a statement issued by the Council of Warwick University. The university said the parental contribution system was inadequate and that rent and food charges demanded by the universities were more than students could afford because of national policy laid down by the Department of Education.

"Conflict between students and university authorities arises over issues which can only be settled by national decisions. If such conflict is to be avoided, in the best interest of all, the student grant must be raised to a level at which financial disparity between students and other members of society ceases to create bitterness."

The university criticised the way campus accommodation construction was financed by loans with loan charges then passed on to students through high rents. The position of students had "greatly worsened" since the University Grants Committee introduced its present policy.

"The costs passed on, in which the university is primarily concerned,

are residence and catering. The inadequacy of the grant, however, is intensified by the rising cost of many other essential items students must acquire, the most important example being books."

"The problem has been further accentuated by the inadequacy of the increase in the grant over a number of years and, therefore, making this year's grant as basis for the increase for next year, will not produce a reasonable grant. Calculations must be made to get back to an adequate base line."

Despite the arguments of the Committee of Vice-Chancellors and Principals and the National Union of Students the Government awarded students only £740. It was expected that by February next year students would be getting only two thirds of what they should have received if the CVCP student cost index were used.

Students at Leicester Polytechnic were sleeping five to a room in official accommodation at a cost of £12.00 a week each, the students' union claimed this week. A rent strike has been called to get rents reduced to £10 a week.

## Are charters 'legal fictions'?

The annual conference of the Society for Research into Higher Education will be held on December 17-18 at Bedford College, London.

It will open with a discussion by Professor G. C. Moodie of York University and Mr Rowland Buntace of the Centre for Environmental Studies in London on whether university charters are merely legal fictions.

Other sessions will hear Mr John Fielden, a business consultant, dis-

cuss the rise of the university registrar as the historical parallel of the "decree of the professor".

Mr Michael Shattock, registrar of Warwick University, will give a paper on "the financial constraints on higher education". Professor Stanislaw Andrecki of Reading University will consider the relationship of universities' power structure to creativity within them.

Further details from SRHE, 25 Northampton Square, London EC1V 0HL.

## Increases in polytechnic costs in 4 years

The following statistics on polytechnic expenditure were announced in the House of Commons recently by Mr Fred Mulley, Secretary of State for Education and Science, in answer to a question from Mr George Rodgers, MP.

Net Recurrent Expenditure* on Polytechnic				
	1971-72	1972-73	1973-74	1974-75
Birmingham	2,388	2,835	3,160	3,440
Brighton	1,602	1,948	1,994	2,300
Bristol	1,720	2,086	2,432	2,680
Cardiff	1,558	2,096	2,432	2,680
Huddersfield	1,692	2,290	2,647	2,930
Leeds	2,754	3,225	3,649	4,120
Leicester	3,118	3,519	3,660	4,120
Liverpool	2,235	2,747	3,147	3,620
Kingston	2,315	2,804	3,147	3,620
Middlesbrough	1,433	1,961	2,091	2,380
North East London	13,748	17,397	19,509	21,840
Nottingham	2,841	3,710	4,196	4,680
Newcastle-upon-Tyne	1,630	2,023	2,272	2,520
North Staffordshire	2,188	2,723	3,039	3,380
Nottingham	1,261	1,591	1,878	2,120
Plymouth	1,020	1,394	1,539	1,780
Portsmouth	1,537	2,042	2,272	2,520
Reading	1,988	2,602	3,315	3,760
Sheffield	1,708	2,155	2,320	2,570
Sunderland	1,430	1,893	2,120	2,370
Torquay	2,275	2,493	2,780	3,030
Wolverhampton	1,876	2,376	2,578	2,820
Glasgow	884	1,310	1,619	1,860

\*Excluding loan charges and capital contributions from revenue. Includes expenditure in respect of North London Polytechnic from April, 1971, prior to designation.

## Learning by post is best, teenagers say

by Frances Gibb

A significant proportion of the 16 to 19 age group who chose to study by correspondence programme better than adults on the same course, a survey on "Distance Teaching and Young People" in the November issue of *Adult Education* concludes.

Based on 124 students of this age group taking correspondence courses at the National Extension College, the survey shows that a large proportion (53 per cent) of girls and 30 per cent of boys rated correspondence study as equal or preferable to class teaching. But this could have more to do with poor experience of school than a positive liking for the system, the article says.

The students, most taking GCSE courses, completed more assignments over one year than adults taking the same courses.

Of students who were at work, girls completed more assignments than boys (69 per cent compared with 44 per cent) but found correspondence courses more difficult. Many had commitments of home and families. Of students still at school, more boys than girls found correspondence courses difficult; 41 per cent compared with 36 per cent of girls.

Reasons given by those still at school for choosing to study by correspondence include subjects not being available and timetable problems. For those at work the reasons were lack of local courses and job constraints such as shift work.

The problem of isolation was chiefly with students at work. At many a 33 per cent said they would attend a local college to be able to socialise and meet friends. Funds could be provided for setting up an Open College offering courses specifically designed for the 16-19 age group, the article concludes.

Not only did students choose this form of study and do well at it, but correspondence courses could also be an effective and economical way of overcoming schools' staff and timetable problems.

## Sussex to take more students

Sussex University is planning to increase its student numbers by 20 in 1976-77. The expansion will be largely in the arts and education.

At a meeting of the university planning committee it was decided to add about 25 posts to the nominal staff total to arts and education in 1975-76. These would be financed mainly from out-going science vacancies. Staff at the Centre for Educational Technology will be transferred to these posts.

All these plans would be reviewed in February 1976 in the light of student applications for the next academic year.

## Don's diary

Tuesday 7.15 a.m.

Say goodbye again this morning. Mentally check through list of possible causes. Lock of fresh air? No, I can still see two inches of clear sky on the top of the bedroom window. And in any case the room is full of the smell of After-Eight mints. (Everyone in York lives within smelling distance of Rowan trees. People who meet each other in the street often forgo any routine reference to the weather. They just sniff the air in a slightly agitated manner, saying "Smell the Rowans" or "Ki-Kat". Everyone knows what they mean.)

Hangover? Hardly. Nothing more last night than half-a-bottle of cheap Chianti, and that was only to help down the Marks and Spencer Lasagne (my wife goes to karate classes on Monday so I organise my own supper). Probably the new sleeping pills. I've been on Mogadon for years but my GP suddenly switched me to Dozalone last week. (Just part of his general professional deterioration, I fear. I've never been happy about his manner since I went to see him last March about a personal itching problem and found him lying fully-clothed on his own examination couch staring at the ceiling.) Dozalone is a rather bitter-tasting yellow pill. Nasty. Another morning headache like this and I'll have to borrow some Smerzol from the departmental medicine box.

8.15 a.m.

Woke to work again with two pounds of sugar in my pocket. I have found this strategy is working rather well. My problem, you see, is that I only live three-quarters of a mile from the campus and so by itself my daily walk is hardly enough to get the heart back into tiptop condition. The sugar acts as a sort of handicap. At the moment I'm trying to add an extra pound each week. Otherwise I am afraid it's back to the Allegro and regular doses of Nividrex-K.

My wife still insists on finding this sugar business fairly comical. ("Do you take sugar?" I was asked last week by the deputy provost of the annual reception for students resitting their part-one examinations. "No, only to work in his pocket," she blurted out, adding, "It's his dicky dicker, you know" - a phrase I particularly dislike.)

9.00 a.m.

Very pleased to find an invitation to visit Market Harborough College of Social Studies in my morning mail. Not on the face of it an ideal venue, but they're doing some excellent work these days at the college. Most of it is due to a chap called Turpin who graduated from here some six or seven years ago. Paced with the usual indifference to sociology by first-year students, he bit on the idea of dramatising some of the classical works. Last time I was there I advised a very competent and able version of Ralf Dahrendorf's *Class and Class Conflict in Industrial Society*. The whole debate took on a new edge when you actually saw Mosca, Pareto and Marx arguing their cases up there on the boards. He's used the stage extremely well. The principal actors

helped my wife to make the ortho-

graphic bed. Surprised to find two essays on Max Weber under the bottom blanket. Crumpled but still legible places on the protestant ethic. Didn't recognise the students' names. Michael O'Toole and Gladys Virginia. Certainly not in the present third year. Silly argument with my wife about when the blanket was last moved. Finally agreed it was when I slept in the attic during a nasty attack of gastro-antiritis last spring.

Down to breakfast. A little indignation again despite the double dose of Aludrox. I took "last night's Universalist-Thru Way Ahead" was not in this month's *Studies in Higher Education*. Particularly irritating because it is an essay which I expect to stir up some controversy in the current debate on education cutbacks. (Basically I expect to suggest with references to Durkheim that the new universities are falling in their task of providing moral education for the present generation of students. It's a highly argued thesis with a strong philosophical edge, but I've had nothing but trouble with it since it was commissioned last July. The first set-  
back occurred when the proof arrived for correction in September. I was shocked to find that someone had written "morning" for "evening" in a special filler who is this pedant anyway?" at the bottom of the last page.

I've now accepted the editor's assurance that these comments were

actually referring to some other article and had been mistakenly jotted down on my proofs by an office junior who has since been dismissed, but you can understand that the whole affair raised some doubts in my mind about the general efficiency, if not the academic competence, of the editorial staff.

Matters weren't helped either when the editor then asked me to say that they'd had to cut 500 words in order to make room for a contraceptive advertisement from somewhere called Premier Lubricants. He muttered something about "paying our way" out "necessary compromises with capitalism", but in effect it meant that my interesting attempt to locate the Montessori method within the teaching of the social sciences was reduced to somewhat less significant than a list of cut-price sheets. (Perhaps I could flesh the paragraph out and send it off to *New Frontiers in Education*. A friend told me the other day that they'd agreed to publish an edited version of his first year lecture notes.)

10.15 a.m.

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were left free to wander around the central area but on the sides he'd erected three rostra which accommodated the separate choruses - The Rising Middle Class, The Nineteenth Century Working Class, and a smaller section who of course represented Dahrendorf's famous imperatively Co-ordinated Associations. I was very sceptical before I went but came away convinced. I see from the letter that they're having a shot this year at Marx's *Economic and Philosophical Manuscripts of 1844*. Turpin certainly lives a challenge.

9.45 a.m.

I was lying on the floor taking a telephone call from the vice-chancellor when the departmental energy officer came up to see me. (Taking telephone calls on the floor is one of the more invidious effects of the economic cut-backs. Having exchanged the position of my desk and inhouse last year because the university could not afford to replace the broken blinds which had previously shielded me from the sun, I then found that they couldn't find the money to extend the telephone line. There is simply no alternative but to take all my calls at 11am level.)

Basically, the energy officer's job is to keep an eye on the use of heat and light around the department. We gave the job to one of our colleagues who's unable to do much actual teaching because of his extreme nervousness about speaking in public. I'm afraid all got a bit out of hand in recent months. At first it was a series of minor irritations, like his predilection for switching off the lights in lavatories without checking to see if the others were all vacant, or his attempt to organise a general departmental coffee break so that the kettle might be used more economically. But lately his enthusiasm for the task has reached an obsessional level.

10.30 a.m.

Today he was anxious to secure my backing for a scheme to run the electric typewriters off second hand car batteries. I humoured him for a while - even pretended not to notice that he'd turned my radiator down by at least 10 degrees - but really he looks more and more like a man who could do with an extended course of Drimomyl. Unless we curb his soon there is a serious danger that some of our more senior staff members will contract hypothermia in the hard months ahead.

11.30 a.m.

Call from Corfield University asking me to give a talk on dental caries at a forthcoming symposium on advances in dentistry. Was lying on the floor trying to explain that decision of priority when my wife's head light went out. The monobod obviously found the fuse-box at last. I pulled my coat around me - the room was already getting distinctly chilly - and swallowed my first Valium of the day.

Laurie Taylor

The author is Professor of Sociology at York University.

## Thoughts on being sat-in upon



ERICA ROBINSON

Representatives of the college students' union occupied part of my office for 10 days as a demonstration of protest against "education cuts" and snuff of their manifestations in the college. It was not a ground occasion, far there was little flurry or fuss and we did not feature in the national papers or on television. Perhaps this was because the statements and demands of the students were reasonable and, allowing for the act of occupation itself, their behaviour was eminently sane. Direct action of any kind requires courage and it is frightening. For most of us in the academic world it is a rare and therefore rather shocking experience that can evoke some surprise and unexpected reasons. I was frightened when the students appeared, indignant later when they denied me admission and outraged that they had picked on me.

I remember vividly my first experience of strike action and my second. The first was in my student days when I was travelling in Suffolk and the second was a teachers' strike in Enfield. On both occasions I was unprepared for the intensity of passion that was aroused, the venom between erstwhile friends and colleagues that was suddenly ignited. Perhaps I have been lucky or blind but in my experience of direct action by students there has been little of this. Certainly there was no sign of it last week in Bradford and the only one who got excited during our talks was me.

Most of the accounts I have heard and read of negotiations between student leaders and academic authorities have come from the student side. They invariably depict the students as controlled and rational and the academics as petulant and undisciplined. This may not be quite the distortion it appears to be. Much of the strength of student militancy lies in its potential for forcing academics into unfamiliar situations in which they react as ordinary, and possibly somewhat inadequate, people.

The Bradford students were protesting about financial decisions of government, national and local, but they were also dissatisfied about decisions of priority in their own college. In their view, unacceptable economics had been made in recreational and health facilities. They had the support of some teachers in this and in their complaints about conditions in the classroom. It was a depressing reflection of the confidence of students in the authorities and the teaching staff that the question of "victimisation" was very prominent in the discussions that dominated the demonstration. The main lesson to be learned was that economy measures must be thoroughly and extensively discussed in advance.

It is now certain that the financial difficulties in education will get much worse before they get better. During the next few months the worsening will be most apparent in the local authority sector and I will not be the only principal to be put through the mangle. The senior people in colleges and polytechnics will earn their money during the coming months. There will be no need for Mariano D'Amico to suggest the men from the boys. Money for higher education is to be cut and cut again. It is natural and right for us to fight a rearguard action as we retreat but it could be suicidal merely to stand in position.

Those who associated with me must either come to lead the implementation of the cuts according to priorities for which they will be held accountable. The most painful dilemma faced is occasionally and locally is whether to cut student

numbers or to cut the standards of provision. To keep students out in order to maintain standards for those who are it will be the costliest way to keep the internal peace. It has or least two flaws.

It essentially maintains the position of those inside at the expense of those excluded (already a very real issue in further education if not yet in higher education) and thereby offends at least the declared ideals of the students' and teachers' unions.

It denies educational opportunity to members of a public that is not persuaded that our resources are being efficiently used.

In some areas of higher education institutions will simply not be permitted by the external authorities to meet the cuts by corresponding cuts in student numbers.

These are the areas in which we can expect major troubles with students and probably teachers in the near future. Outstanding among these is the polytechnic field. The failure of the polytechnics to speed the rate of change in about staffing ratios makes them the obvious candidates for the axe and it is surely about in fall.

The consequential appear in the polytechnics will make the present unrest in the universities seem insignificant in effect when many of the techniques will be the worse for their lack of preparedness to face the problems.

It is not sufficient for the people of the top to accept the necessities of the situation. If we are to avert the total disaster which is the inevitable light against irretrievable financial pressures we have to involve teachers and students, possibly even more fully than they are inclined, in the very difficult decisions of priority that have to be taken.

It is no use the academic board or the finance committee making decisions of priority. However rational and defensible, the reaction in the classroom and the staffroom is one of incomprehending resentment and despair.

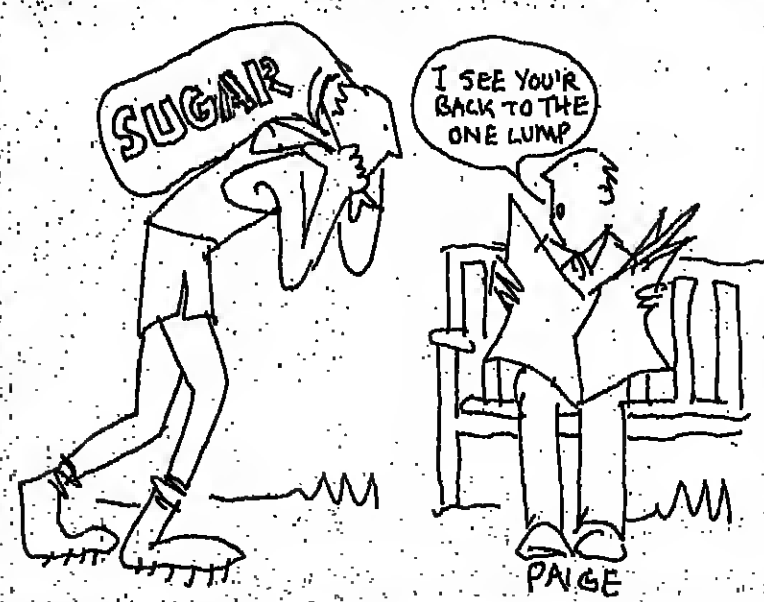
The industrial dramas recently played out on television and in the press have important lessons for higher education although this may not be immediately apparent. Not so very long ago the tycoon of Rolls-Royce, Lord and Chrysler were holed by a union which was now, unthinkable in higher education, may become the reality tomorrow.

The experience of *The Observer* newspaper might prove particularly apposite. Quite simply, the staff was forced with the necessity of volunteering redundancies as the price of survival.

As in industry, a popular solution of the problem of survival is the syndicalist one - of workers' control. Hitherto it has been tried in industry without notable success. Syndicalism of a kind is respectable in academic institutions. Will it be more successful there in meeting the problems of financial crisis? One of the outstanding problems is about the membership of the syndicate. If colleges are to come under workers' control whom do we define as the workers? Traditional academic syndicalism includes only the senior staff, but there is a modern version that includes the junior staff, the students and even the non-teaching staff.

There are signs in a few polytechnics of a more serious movement towards such syndicalism than in any university. One of them, curiously enough, was once styled the Rolls-Royce of the polytechnics. This development suggests some interesting questions in the light of industrial experience. The most intriguing is to identify the Tony Benn of education, complota with moneybags. Another is whether the academic syndicates would find the problems of management as difficult as the industrial syndicates have done. A third, and most intriguing of all, is how the public interest or the "market" would relate to the syndicate so that it did not become merely a self-protective or even self-indulgent mechanism.

We are all so afraid, afraid of ideas, afraid of challenge, afraid of the young and afraid of change. The intellectual response to student and junior faculty militancy is not the repression that is now so widely advocated. It has been led with success and has damaged us more than the militancy itself. It is time that in one or two institutions the new syndicalists were given a "fair go". For them to have the experience of management and accountability to the public would be worth more than years of preaching by both sides.





## Between people and their pleasures

The Arts Council last month issued its gloomiest statement for several years. It claimed that its work, which supports about 1,000 opera, theatre, and ballet companies, orchestras, and community and regional arts associations, could collapse. The arts, like higher education, are one of the first items in the public expenditure list to feel the axe at a time of economic hardship. They both find it difficult to cope with financial difficulties because they are geared to long-term planning and are unable to adjust quickly to changed circumstances.

Mr Roy Shaw, who was appointed secretary-general of the Arts Council this year, has asked the Minister for the Arts for a 50 per cent increase in the council's annual grant for 1976-77 which would take it from £25m to £40m. This will keep the present provision as it is but not expand it.

Justifying the arts at a time such as this is not an easy task. "In times of financial difficulties, the arts are more necessary, not less. They are indispensable to the health of the nation. I know that it is an extremely difficult time for the Government to make more money available. There is also a long tradition of under-funding the arts in this country, and it is painfully obvious that we are falling to meet our obligations to the arts."

A recent Labour Party policy document proposed that about 5 per cent of the education budget should go on the arts, which would amount to about £250m. This is about 10 times its present level, which is £25m, of a total education budget of about £2,500m a year.

While unwilling to comment on a party policy, Mr Shaw agrees 5 per cent would be a reasonable figure. In the meantime, the exact figure of next year's grant will not be known until February, and enormous problems are being created: arts organizations like theatres and orchestras should have made their plans for this period. But they have had to make them without proper knowledge of the future.

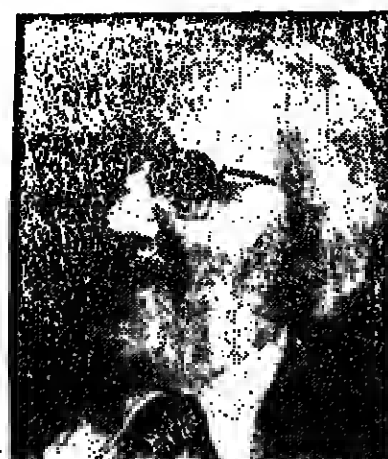
Universities, polytechnics and colleges are affected by the situation. Most of the college theatres and arts centres, such as the Guggenheim at Kent University, the Arts Centre at Southampton, and the Gardner, Sussex depend heavily on the network of touring companies, musical groups and exhibitions. The Arts Council gives over 2,000 grants to these smaller organizations which would collapse if the grants were stopped.

Mr Shaw will not list priorities among the national, regional, community organizations, individual artists and small companies. He says: "I am not prepared to think of cutting anything; nothing is more expendable than anything else." In the past, the Arts Council have been criticized for keeping quiet about its plans, but Mr Shaw says that it is now under fire for speaking out against the Government.

He is unrepentant. "Perhaps in the past the Arts Council has been too silent about the real needs of the arts. The Arts Council has a unique intermediary role between the Government and arts organizations. It represents the Government in spending money but must represent the arts organizations in telling government what public opinion wants the arts to do in order to survive."

The fault is not entirely the Government's, he adds, but partly the public's general attitude, which does not acknowledge the value of the arts. "I am simply saying that public opinion is not adjusted to meeting the real demands of the arts, and the Government can not go very far ahead of public opinion."

This fight here is less obvious than the economic one, as Mr Shaw is up against a long-held tradition of anti-intellectualism. His answer, as former specialist in adult education, lies in education. "Mass democracy will mean cultural decay unless the state spends



Mr Roy Shaw

more money on education, including adult education, and unless it endows the arts more generously." His main concern is therefore increasing knowledge and understanding of the arts. The council's other function—to make the arts more widely available—is useless without this, he says. "You don't make the arts accessible to large numbers of people unless you have increased provision, and also improved education so that people can benefit from it." He dismisses the argument, against giving people opera when they want pop though he acknowledges its force. But he does not support the wish to give people what they want. "I don't think it follows that few people need it, and we must educate people to want what they need."

Popularization of the arts does not mean diluting their quality—more does not mean worse. He deplores the opposition of a high and a low-brow culture. "The £64,000 question is whether you make high art available to more people, or whether you say high art is irrelevant to most people's experience, and that there should be provision for alternative forms, of which community art is the foremost example. There is a range of artistic experience from the most popular to the most refined."

With his experience in adult education, he is aware of the problems of reaching a majority of the population and is particularly flustered to solve it. At Keele University, where he was director of the extra-mural department for 13 years, he tried to meet that section of the working class that the Workers' Educational Association had failed to reach. Adult education departments in colleges and universities, therefore, can take a more active role both in making the arts more available and promoting understanding of them, he says.

He also suggests broadcasting. As a former chairman of the Standing Conference on Broadcasting, a member of the Open University planning committee, and with experience of BBC local radio, Mr Shaw is a strong advocate of this method of contact.

Education is not only central to the arts; it is indivisible from them. "I'd like to see arts and education hyphenated to indicate that it's two aspects of a unique activity." He plans spending more on educational activities in the coming year, and hopes that current projects, such as exhibitions, art museums, lectures and booklets will spread throughout the country.

This emphasis on the regions is probably one reason for his appointment: as a man who comes from the north, he is the right person to lend credence to the Arts Council's policy of decentralization, a policy reflected in the increasingly large grant accorded to the regions every year. It is a policy he intends to continue and hopes to develop more responsibility for the regions. At the same time, he believes the local authorities have a big part to play. He wants to see a far closer working relationship between all three agents: the centre, the regions and the local authorities.

Colleges, particularly in the regions, therefore have a clearly defined role in Mr Shaw's policy. But he is wary of the danger of making the arts more isolated or intellectualized.

Mr Shaw's mission is to raise the status of the arts by placing them firmly within education. One of his priorities is to have a council officer responsible for education. At the same time, however, he can do education a service by showing it has something to do with enjoyment.

## The well-rounded geographers

For some academics geography is still neither science nor art, neither fully descriptive nor analytical. Some senior members of our ancient universities can still be found who dismiss it as a school subject. Academic hubris notwithstanding, geography is alive and well and nowhere more so than at Cambridge which still offered it as an undergraduate honours degree. The one of the subject's grand old men, Professor Clifford Darby, is about to hand over to Professor Michael Chisholm, who comes from what many geographers consider to be Britain's second best department, Bristol.

The hallmark of Cambridge geography is probably the intellectual quality of staff and students attracted to the department situated among the natural science laboratories in Downing Street. It has always had a good supply of well qualified sixth formers, and its graduates have gone on to face the subject's growth in other centres. Professor Chisholm, like Professors Peel and Haggart among his Bristol colleagues and like nearly 50 per cent of current holders of geography chairs in British universities, went through the department.

Earlier in its history Cambridge geography had the reputation of being strong on the physical side, of geology, landforms, meteorology, and soils. Now, while it remains formally linked with geology within the faculty, many geographers consider Professor Clifford Darby's work to be its strongest suit.

Professor Darby's life work has been in historical geography, particularly land use and form at the time of the Norman Conquest. Just as he is no historian *menqué*, but someone whose geographic work has its own intellectual discipline, so sixth formers attracted to the department are not arts students on a soft option.

His colleague, Professor Dick Chorley, whose own interests are in physical geography, explains: "Increasingly students come with a mixed bag of A levels, including geography and mathematics. But it is not mathematics beyond O level provided they are well motivated and have the kind of imagination that will illuminate the discipline. The mathematics and statistics can be picked up later."

Both men use the key to Cambridge geography: the whole of education offered within a discipline, a view shared by the array of professors educated there. The academic revolution of quantification which has bettered traditional scholarship in fields like economic history and geography has taken its toll on geography to recent years, but the Cambridge department which Professor Darby took over in 1966 remains on even keel. The tripe system continues to offer a fine balance of specialization and liberal education.

Cambridge has strong teachers in a number of fields: B. W. Sparks on geomorphology; D. E. Keeble on planning and regional development; B. H. Farmer on South Asia; B. A. Wrigley—now director of the SERC group for the history of population and social structure on historical demography; and A. L. "Gus" Caesar on economic and applied geography.

Geography was first examined at Cambridge in 1920 but it was not all 11 years later that Frank Dabnam, a member of Captain Scott's expedition to the South Pole, became the first professor. Professor Dabnam is credited with the foresight to equip the department with a building that it has not yet outgrown despite the expansion of student numbers. Also, with some money left over from Scott's expedition Dabnam formed the Scott Polar Research Institute, now a quasi-autonomous unit of the department offering a postgraduate diploma in Polar studies.

The department is loosely responsible for the work of Professor J. K. S. St. Joseph, director of the serial photography unit. Medievalists, archaeologists and geographers to whom a grass field was a mystery have been enlightened on scores of occasions by photographs from the unit, which reveal rivers, furrows and historical debris visible only from directly above.

In succession to Professor Dabnam came Professor Alfred Steers, who brings much credit for building up the department, and in particular for giving it a reputation of being sixth formers from one college to St Catherine's.

With its new professor about to take up his appointment, David Walker looks at the geography department at Cambridge University.

To those who believe in the complexity of the history of St Catherine's connection in British geography is a god-send. Professors Ray Fahl of Kent, Peter Hall of Reading, Michael Chisholm of Bristol, J. C. Pugh of King's London, and Professor Darby himself to name only a few went through the college and the department.

The Second World War moved many of the St Catherine's geographers who went on to become professors readers and lecturers were taught by one man, Mr A. A. L. Caesar, now the senior tutor.

In fact, to dispel the conspiracy, the reasons for this academic configuration are down to earth. St Catherine's was one of the first colleges to offer awards in geography; it established a network of contacts with sixth-form teachers many of whom later were its own graduates, and with particular schools like the Royal Grammar, Newcastle.

What intellectual influence this relationship had on British geography as it became established outside Cambridge is more difficult to unravel. On Mr Caesar's bookshelves there are whole rows of respectable geography textbooks and monographs by St Catherine's men; he himself was on intellectual stimulus to his pupils, many of whom still regard him with deep affection.

As to the department's broader intellectual influence, most of the professors who were undergraduates there would deny there is much cohesiveness among them. To Professor H. Bowen Jones, of Durham, the proximity of the natural sciences in Cambridge gave teaching and research there an intellectual edge, a sharpness. However, one of the Bristol geographers warned that chance had a role in all these arrangements and recalled that Cambridge always attracted able people in all subjects.

They agree on one thing. The geographical education at Cambridge always had a roundedness which taken with the intellectual and social atmosphere of department and colleges—St John's and

Fitzwilliams are strong geography colleges like St Catherine's—boosted its reputation.

Professor Darby's own career matches the department's ethos of disciplined thought with a geographical catholicity. It has led him to University College, London and to Liverpool, to America, and recently to his fellowship of the British Academy and chairmanship of the British National Committee for Geography under the Royal Society. Since he came to Cambridge in 1928 his career has paralleled the burgeoning of geography in Britain.

These years covered the babyhood of geography as a subject of expertise of use to government. Professor Darby himself has served the Water Resources Board, a local authority and the Royal Commission on Historical Monuments. For many geographers the boom in planning jobs from the growth and reorganization of government represented the subject's salvation. But Cambridge's formula of mixed physical, economic and historical geography survived that trauma.

Professor Darby says: "At last a man working as an archaeologist has got much to learn from a man studying Domesday geography. But most people take basic to physical geography and in matters both diverse their specializations there remains a basic geographical attitude."

Cell it is a cartographer's or opastal snail, there is a basic way of thought among geographers. For instance, it is something I feel keenly when among historians: it is a distinctly different discipline."

In fact the students who emerge from Cambridge in recent years have mainly specialized in economic geography—arguably the best preparation for a career in planning. There are roughly four economic, two historical and one physical geographer among part-time students.

In part one, the students have to offer geographical method, physical papers (say, biogeography or fluvial geomorphology), cartography and statistics, economic geography, historical geography, and optional papers (which could be either say, East Anglian landscape or the cultural geography of Middle America).

The department has about 10 research students doing doctoral work, and it is likely that with the advent of Professor Chisholm a question of a taught masters degree course will be raised. When changes the new regime brings, it is unlikely to affect the department's faith in high calibre staff and its high standards demanded of students individually and collectively.



The Great Western Embankment of the River Cam, Cambridge, has always been strong on landforms and soils.

Peter Wilby interviews Dr Robert Brockie Hunter, the vice-chancellor of Birmingham University

## A provocative Scotsman with a scalpel-sharp mind



Dr Brockie Hunter and an aerial view of Birmingham University.

When Warwick University students rolled their vice-chancellor's files during a strike in 1970 they found a confidential note from Sir Christopher Cox, then an advisor to the Ministry of Overseas Development, concerning a conversation with Dr Robert Brockie Hunter, vice-chancellor of Birmingham University.

The conversation was a follow-up to an earlier talk about Birmingham's links with the medical school in Salisbury, Rhode Island, and Sir Christopher concluded his note by saying: "I thought I had probably underestimated his intellectual calibre in our earlier talk and I should certainly modify now what I said then about it." (What he had said then, it transpired, placed Dr Hunter in a son of Third Division North of intellects).

Leaving aside the merits of this peculiar academic disease of passing sweeping judgments on people's intellectual calibre, and grading their minds like eggs, it was an easy mistake for Sir Christopher to make. Though he does not have a strong Scottish accent when he says words like "snafu", Dr Hunter is much as a Scotsman should be: down, canny, matter-of-fact and living his life as his single recreation in his job. He speaks quietly, even flatly. He rarely philosophizes, and then not convincingly.

But face him with a defined problem and you see that he has the scalpel-sharp mind of a man with a medical training. First, the diagnosis, precise and perceptive; next the recommended course of treatment, drastic or moderate, according to circumstances; at the same time, a comforting note in his voice, reassuring you that it won't be as bad as all that.

What Dr Hunter has recommended for universities recently is surgery. His doomwatching speech at a graduation dinner last July—"we are now beginning to consume the seed corn"—was awarded that curious press accolade, normally reserved for such as Mr Enoch Powell and Mr Reg Prentice, of being regarded as an advance of delivery.

The paragraph that caught the eye was this: "It may well be that the build-up of one of the new universities and polytechnics will have to be delayed so that we can maintain a few quality institutions. Some might even have to be closed. The other policy of spreading the butter thinly will mean disaster to all to educational terms and will delay the recovery by this country of its former greatness."

Dr Hunter is plainly not ashamed of that speech, because as soon as I mentioned it a secretary was summoned to present me with a

copy. Yet, among friends and colleagues, he has a reputation for putting his foot in it, for making, without much warning, provocative statements, as if in confusion those who equate loudness with dullness.

One fellow vice-chancellor was inclined to dismiss the July speech as a midsummer aberration, committed partly because it is necessary to say something in after-dinner speeches and partly because any vice-chancellor wishes to raise the spirits of his troops and convince them that the general is doing something useful. Dr Hunter admitted that he had not thought it all through in detail but, in its general drift, one suspects that he knew very well what he was up to.

He has been fairly single-minded since, at the age of 35, he went into hospital for an operation, thought that surgeons were glamorous and decided that he wanted to be one himself. So, the son of an Edinburgh attorney, he went to Birmingham medical school. During the war he was with the Eighth Army at El Alamein and, just before the war, he was in the Royal Air Force as a pilot. Dr Hunter is much as a Scotsman should be: down, canny, matter-of-fact and living his life as his single recreation in his job. He speaks quietly, even flatly. He rarely philosophizes, and then not convincingly.

Then he went back to Edinburgh as a therapeutics lecturer. He applied for a Commonwealth fellowship, and was interviewed by a committee chaired by Sir James Irvine, then principal of St Andrews. Sir James was so impressed by Dr Hunter that he immediately offered him the chair of materia medica. Vice-chancellors and principals could do that sort of thing in those days though, if you want to be absolutely precise about the formalities, Sir James's personal physician, a good palant—operated on the principle that he knew his job and you knew yours—and was with him when the Germans surrendered.

Dr Hunter was then just 32 and his clinical career did not get the chance to live up to that early promise. He is an ambitious man and, in administration, he saw no opportunity to operate on a wider canvas. Influencing decisions about priorities and resources. His success at St Andrews, in creating a new postgraduate medical school at Dundee (which was then part of the same university), he bypassed dispute. At this time he began to develop his ideas about the importance of community medicine in making the difference between the curative and the preventive. Some years later, of a British Government committee on the subject.

Dr Hunter has also served on the University Grants Committee (for two years, as chairman of its medical sub-committee), and

on the General Medical Council and on several Ministry of Health committees including, lately, one on smoking.

So it was no surprise when he was appointed vice-chancellor of Birmingham in the summer of 1968. That was hardly an easy time to become a vice-chancellor and, astonishingly, he foundered. During a dispute with Birmingham students over participation he made the elementary mistake of threatening disciplinary action against occupying students at the very moment when the popular idea was swirling against the sit-in. The Sunday Telegraph carried a cartoon in which he was depicted as a man under the heading "Quelling Restive Students: How not to go about it."

The episode was a shock to him. "My feeling then," he said, "was one of injustice and resentment. I had spent my life looking after people in relations of trust on both sides. I came into a situation of mistrust, which was not a pleasant one. I had to learn to cope—in an understanding, positive, constructive kind of way. You have to learn from the people who are attacking you and try to be open-minded. How not to go about it."

Since 1968, his political touch has grown surer—he has piloted the university safely through the affair of Mr Dick Atkinson and through the Grimond review of its governance and constitution, and its subsequent modification. "This was a matter of formalizing things which were vice-chancellor in his mind before I arrived, and I felt that people hadn't given me a chance. But I learned to cope—in an understanding, positive, constructive kind of way. You have to learn from the people who are attacking you and try to be open-minded. How not to go about it."

Birmingham is also a complex, interlocked system and simply to have kept it going is an achievement for Dr Hunter. He does not have a common touch and student representatives complain that he treats them with disdain. In negotiation, they add, he can be obdurate. To most people, Birmingham is a remote, bureaucratic figure. Nevertheless, Birmingham's new charter and statutes have been introduced without fuss and its union leadership, in recent years, has been noted for its modernism.

In a university where hierarchy has long been entrenched, Dr Hunter has steered a clever, careful, middle course between an active radical group among the staff and a group of exceptionally hard-line traditionalists. He is an administrator's administrator and his July speech was an administrator's blunt view of what needs to be done about British higher education.

on the part of the individual and the universities are the very places where the individual is considered important. That's the sad part of it."

So what is the controversial July speech? What was he thinking behind it? "It was trying to say that you either have a university enough money to run a marathon or you don't." But he had talked of universities being closed? "There was a strong reaction against that. Yet the Department of Education is closing down colleges of education all the time, isn't it? It is substantially reorganizing the other half of the higher education system. Isn't that right? Nobody is looking at the whole higher education system. It's conceivable that if universities are to change their functions there may need to be a reallocation of resources."

What did he mean by universities changing their functions? "We must be flexible and ready to meet the needs of the society in which we live—here in Birmingham, in most of the needs of the West Midlands particularly."

So did he think that Lord Crowther-Hunt, in his pre-summer holiday incarnation, was a good thing? "Lord Crowther-Hunt speaks a great deal of good sense, but I am sure there's been too much misunderstanding of what he said. If you get a job as minister of the Crown, you have a responsibility. You have information about resources that you must make available to other people. There is an hour in thinking people. If universities appear in the future, he is doing a new thing, they have got extra responsibility. I'm sure they will respond."

I accepted that Dr Hunter was not going to nominate anyone to be first for the axe. But what criteria would he employ for deciding which institutions should close? The UGC is there to advise on these sorts of things. In the past, it has concerned itself with closing down certain activities in universities—schools of agriculture, for example. In future, it may persuade universities to close down some more activities, where there is a problem.

"It may have to persuade people that their activities might be phased out and the money spent on something with greater priority. I would have thought this was the thing to do first. Closing down institutions would be the last resort. The country would really need to be run in its uppers before we went as far as that."

So which of its activities would Birmingham phase out? "Birmingham is looking at its activities in the light of national needs and what is happening elsewhere. These are hard decisions. You need a degree of cooperation between sister institutions. The UGC can be on hand to help. I have admitted that every part of this university is not excellent. But there is something to be said for holding together large institutions in which £50m or £60m has been invested. Monasteries, for example, is a complex, interlocked system. It has to be kept going like British Leyland."

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## Metallic Arthurian secrets from a Celtic fortress

The Celtic metalworkers of Arthurian times wrought with a cunning which enabled them to match their materials to their purpose. New research at Liverpool University on a fifth-century Celtic fortress on the west coast of Scotland shows that the ancient craftsmen made alloys intended for decorative purposes and for practical purposes.

Dr Norman Swindells of the metalwork and materials science department used an electron-probe microanalyser to examine bronze artefacts found at the site of the Motte of Mark, a hill-top fortress near Dalbeattie, Kircudbright, which shows evidence of being a stronghold occupied during the period 450-650 AD.

Originally investigated by Dr Alexander Curle in 1913, the site was re-excavated in 1973 by Dr Lloyd

Laing, lecturer in medieval archaeology at Liverpool. Dr Swindells discovered that bronze pins, needles, and in addition to the usual copper and tin, an unusually high proportion of lead, a close sign that the pins were intended for decorative purposes, because bronze alloy so mixed to improve fluidity in the moulding process could not be hammered when cast. The pins could not therefore have been made of metal, but they contained only a low proportion of lead.

Analysis using the Japanese-built microanalyser is only one of the metallurgical techniques that Dr Swindells has applied to specimens from the Motte of Mark. In another case, a shapely piece of iron, when cut open, revealed a sword blade as the hilt of a sword, the piece of iron remaining after the sword blade had been fashioned.



Cost studs and reconstruction of a brooch excavated.

Collaboration between metallurgy and archaeology at Liverpool has been justified by the remarkable amount of information that Dr Swindells and his team have been able to deduce from a few fragments of metal.

The electron-probe microanalyser used in conjunction with a special

pulse processor which enables data developed by Harwell to be used as a research tool. It detects minute quantities of metals and gives a remarkably accurate assessment of the concentration of elements.

Dr Swindells and Dr Laing agree that the metalworkers of the Motte

of Mark were highly sophisticated craftsmen turning out an entire range of metalwork from ornate domestic ware and decorative objects. These findings sustain the argument that the Motte was a major metalworking site in use over a substantial period.

Alan Cane







## Post Experience Courses for Teachers in Further and Higher Education

### 1. UNIVERSITY OF MANCHESTER DIPLOMA IN ADVANCED STUDY IN TECHNICAL EDUCATION

Applications are invited for full-time and part-time versions of courses commencing in September, 1976, which will respect the following themes:

#### (a) RESEARCH

A study of the methodology involved in the design, implementation and analysis of research investigations in further and higher education.

#### (b) EDUCATIONAL MEASUREMENT

A study of the theory of measurement as applied to the development and use of measuring instruments appropriate to the functions of teachers, counsellors and administrators.

#### (c) EDUCATION MANAGEMENT/ADMINISTRATION

An analysis of management and administrative theory applied to current problems in further and higher education.

#### (d) COMPARATIVE EDUCATION

An approach to the application of comparative methodology and cross-national data to the analysis of current problems in further and higher education.

### 2. UNIVERSITY OF MANCHESTER DEGREE OF BED WITH HONOURS IN EDUCATION

Applications are invited for the one-year part-time preliminary courses commencing in (i) January 1976, and (ii) September 1976. Studies at this level provide a comprehensive grounding in (a) Philosophy (b) Sociology and (c) Psychology as they apply to educational processes, and (d) Contemporary Educational Institutions.

Candidates who are successful on the Preliminary Course may proceed to a one-year full-time or two-year part-time BED(Hons) course. Options available at this level include Curriculum Studies, Further and Technical Education, Audio-Visual Communications, Philosophy, Sociology and Psychology.

### 3. UNIVERSITY OF MANCHESTER CERTIFICATE IN EDUCATIONAL STUDIES

Applications are invited for one or more of the part-time twenty-hour MODULAR COURSES being offered each term and commencing January 1976. A wide range of options is available. The pattern of attendance is very flexible and teachers may attend several modules in one term or, alternatively, attend on an occasional basis.

FURTHER PARTICULARS FROM: The Director, Bolton College of Education (Technical), Chadwick Street, BOLTON BL2 1JW.

## Dundee College of Education

A one-year full-time course leading to the award of a

## Diploma in Educational Technology

is offered, beginning in session 1976-77.

The course is designed for those engaged in curriculum development throughout all levels of education and training. The emphasis will be on curriculum analysis and design, and the management of innovation. All participants will be assisted with both the theoretical and practical aspects of the production of curriculum materials. Whilst it is proposed that a small number of production exercises will be mandatory, participants who have specific assignments to fulfil will be welcome.

The new College building offers unrivalled facilities for the study of all facets of the implementation of educational technology throughout an institution; for the use of a high level technical installation for study and information retrieval purposes; and for involvement in the design, production and use of individualised learning materials.

Applications are now invited for the session 1976-77. For further details and application forms apply to:

The Assistant Principal, Dundee College of Education, Gardyne Road, Broughty Ferry, Dundee, DD5 1NY.

## Padgate College of Higher Education

## MEDIA AND COMMUNICATION RECREATION AND THE ENVIRONMENT APPLIED EUROPEAN STUDIES

New vocationally orientated courses, leading to the Diploma of Higher Education or B.A. degree of the University of Manchester will commence in September, 1976.

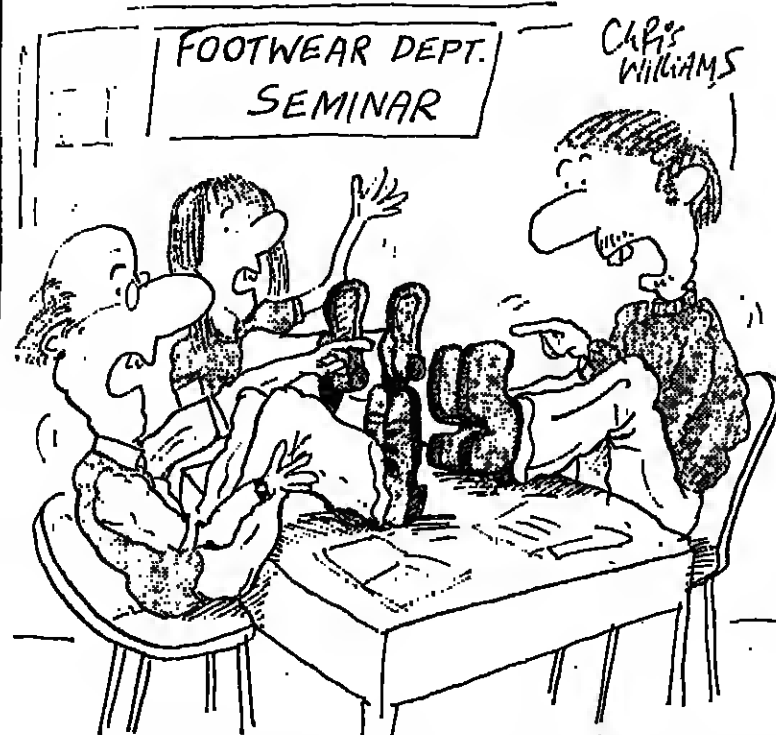
The courses are intended for students who wish to develop careers in the media industries; in recreational and environmental development; in the tourist industry, or foreign departments of commercial or public enterprises.

Further details may be obtained from:

The Admissions Tutor,  
Padgate College of Higher Education,  
Parsloes, Warrington, WA2 0DB.  
Write, telephone or visit. (0925-33571)

## ACADEMIC DEVELOPMENTS

## Shoe design placed on a practical footing



Leicester Polytechnic is opening a design centre for the footwear and leather industries. In conjunction with the Footwear, Leather, Fur-Skin Training Board. As well as pumping new blood into the design industry by retraining and updating knowledge, it will act as a stimulus for the polytechnic's BA honours course in footwear design.

Mr Ben Cooke, assistant director in art and design, said: "We aim to make this centre a dynamic force in an industry which is suffering from demoralization. The British leather industry has tended to look elsewhere for its design and in losing design initiative, has lost sales."

The centre, which is financed by the training board up to £25,000 a year for the first three years, is hoped eventually to be self-financing. Companies will pay for the courses their employees attend and the centre will provide a consultancy service.

By Christmas, between 20 and 25 students will start on short courses in, for instance, design methods for a European market, innovation and change in the design industries, pattern cutting and design techniques. In a year's time there will be longer full-time courses on similar topics.

The centre will draw its expertise from the whole polytechnic, including the faculties of business studies, law and social science, but obviously mostly from the faculty of design and visual arts.

The BA honours course in fashion with special emphasis on footwear design has already been run by the department for three years. About 60 students each year start the course in fashion, and about 10 those go on to specialize in footwear design.

The footwear design course stems from the School of Boots and Shoes which went in with a college of further education when the polytechnic was designated. The polytechnic's school of fashion retained an interest in the subject and created a diploma course, which was later to be converted to a degree.

The course is not entirely practically based. "Like all our BA degrees, it has an academic bite," Mr Cooke said. "Between 20 and 25 per cent of a student's work is academic, they study the history of the subject and a modern language."

The footwear design industry has come to know the course—one of the few in Europe—and are happy to accept graduates straight from it. Alternatively, they could take an MA in fashion with footwear design as the special subject.

The Polytechnic of the South Bank's new part-time MSc course in environmental acoustics is intended primarily for environmental engineers, although it will also be of interest to those in other fields, since it covers a large area of acoustics.

Graduates from the course will be acoustical engineers, who are capable of isolating existing or future noise problems, but also of designing the specific means of overcoming them. They will be equipped to deal with the acoustics of architectural design, and will have, in addition to their practical training, a fundamental understanding of the physical and subjective aspects of acoustics.

The course runs from January to December of the following year. There is a preliminary course in acoustics and mathematics, for those without prior knowledge of acoustics. This is an evening course, run to the preceding autumn term.

The syllabus includes sections on subjective acoustics, acoustic theory, acoustic measurement, engineering acoustics and laboratory work.

A syllabus in mathematics is part of the course and this is intended to complement the parts of the syllabus on acoustic theory and data processing.

The entry qualifications are one or more of the following: a degree in engineering or science, a pass in CSE Parts One and Two in appropriate subjects, a pass in the Institute of Physics, a Certificate in Engineering, or a Higher National Diploma in appropriate subjects, if accompanied by substantial relevant experience.

## CHelsea COLLEGE OF PHYSICAL EDUCATION

(to become part of East Sussex College of Higher Education in September, 1976)

EASTBOURNE, SUSSEX  
BN20 7SR

### Short Courses 1975/76

#### (i) Physical Education for Teachers of Mentally Handicapped Children

10 February to 23 March, 1976  
This five-week course is intended for head and assistant teachers in schools for mentally sub-normal and educationally sub-normal children and is designed to demonstrate ways in which movement may be used to help pupils in their learning of basic concepts.

#### (ii) Science of Movement

21 April to 3 July, 1976  
This term's course is intended for qualified teachers and college lecturers. It will also be relevant to the needs of professional coaches interested in modern approaches to sports training.

#### (iii) International Workshop

8 June to 1 July, 1976  
This four-week period of intensive study is intended primarily for overseas teachers and lecturers requiring an introduction to the concepts underlying movement education in Britain.

Application forms and further details obtainable from the Principal's Secretary, Chelsea College of Physical Education, Hillbrook, Garden Road, Eastbourne, Sussex BN20 7SR.

## Put yourself in the picture



## JUST OUT! Middlesex Polytechnic 1976-77 Prospectus Send for yours today

Admissions Office, Middlesex Polytechnic,  
22-28 Church Street, Edmonstone,  
London N22 8DQ or telephone 01-807 6042

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
CRESA

## CHelsea COLLEGE OF PHYSICAL EDUCATION

(to become part of East Sussex College of Higher Education in September, 1976)

EASTBOURNE, SUSSEX  
BN20 7SR

Applications are invited for admission to a ONE YEAR SUPPLEMENTARY COURSE open to qualified men and women teachers who wish to upgrade their Physical Education for Pupils in the 11 to 16 years age range. It is possible for teachers interested in sport with children to specialise in the teaching of physical education to children. The course is a full-time course which will equip them to teach ADAPTED FORMS OF PHYSICAL EDUCATION.

Application forms and further details may be obtained from the Admissions Office, Chelsea College of Physical Education, Hillbrook, Garden Road, Eastbourne, Sussex BN20 7SR.

## Dumfries and Galloway Regional Council

EDUCATION DEPARTMENT

Proposed SCOTCH HIGHER NATIONAL DIPLOMA COURSES at DUMFRIES TECHNICAL COLLEGE beginning AUGUST, 1976.

Duration: Two years full-time.

Areas of Study:

SECRETARIAL STUDIES (with English)

ACCOUNTING

Enquiries should be made to: Mr. Principal, Dumfries Technical College, Hillbrook, Dumfries, Scotland, DG1 1HJ. Tel: (0183) 551111/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100.

## ACADEMIC DEVELOPMENTS

## Answer lies in the home

by Frances Gibb

The new social work course at Huddersfield Polytechnic which leads to a Certificate in Social Work is unusual in two respects.

First, it caters for that category of learner who would find it hardest to obtain a place on other social work courses: adults, particularly single unsupported women with children, those with no educational qualifications and those with no previous knowledge of social work wanting a change of career.

Second, it is based on a four-term year, with placements in situations not usually associated with traditional social work. Students will work as home helps, helpers in play groups and in welfare centres.

We are saying that domiciliary care and residential work are all part of social work as well as the traditional field work, Mrs Eileen Mason, the coordinator.

The philosophy behind the course, although gaining popularity, is still comparatively rare. "Most courses are oriented to one sort of social work such as group work. We are saying that there are common skills, whether a student is to be a youth leader, a home help or residential worker. We've moved away from the psychoanalytic base of many social work courses."

Mrs Elizabeth Bertolla, one of the tutors, said: "Several courses employ case teaching method, and are based on the psychoanalytic method of working through the relationship; the case-work model. In ours, we are concentrating on the management of resources; on the social worker as resource agent for the client. We are not throwing out the relationship aspect, but adding the self-determination of the client."

The emphasis, therefore, is very much on practice. The course aims for much closer links between theory and practice on the one hand, and between different methods of practice on the other. "We want people who can do the job of social work and not just be students," Mrs Mason said.

Another tutor, Mr Philip Makin, said: "Students will have a broad view. They will know which skills to apply in a particular situation and fit the method to the problem, rather than the other way round."

The course is now hearing the and its first term as students have had a chance to take stock of it. Partly because of the degree of selection involved, (some 35 have been chosen from 350 applications and 1,000 initial inquiries), they are very keen and highly motivated;

one student travels a total of 100 miles each day to attend, and there has been no dropout.

Reasons for applying were varied. Boredom with a job or career was a popular motive; others more actively wanted a change of career and some had started training in social work. Others were divorced or widowed and wanted to occupy their time and find a new interest.

The task of selection was non-moth. Out of the 350 applicants, 126 were selected for further test. The practical side was also brought into play. Some students objected to the idea of acting as home helps—"we didn't come to do other people's housework"—but can now see the value of it and have become involved with the personal situations they encounter dealing with.

"We want to encourage them to see simple tasks and skills as an essential part of the helping process and as more crucial than sophisticated skills," Mrs Mason said.

Although the first year of the course is broad-based, in the second year students specialise in their particular area of interest, such as family and small group work, or work with individuals. It is hoped also to offer second-year options in community work and domiciliary support work.

Students are from the start of the course attached to one of four areas: probation work, social services, education and welfare and domiciliary care. The practical work is closely linked with the academic, in that each student is allotted to a tutor who is then helps with the agency involved in organizing those particular placements. In that way there is continuous feedback.

All the signs are that the course will be a great success. Already selection is starting for next September. It is hoped numbers will be expanded to 50, although some places will be taken by students who were unable to get in this year.

Nor should there be any problem about students obtaining jobs, even for those on grants. Demand is great, and the majority is already seconded either by the Home Office, or by the local authority, and so will have jobs automatically.

What is new, according to the students, is more courses specifically geared to the needs of the unqualified and mature entrant; and there are signs of movement in this direction. The Central Council for the Education and Training of Social Workers is developing a scheme which will enable on a modular basis, by enabling students to study part-time and build up courses at their own speed.

## Bullock call answered

The Bullock report on literacy called strongly for the training of more teachers to language skills. It urged the appointment of language consultants in schools and further training of teachers to raise reading standards.

Anticipating these demands, the school of education at Bristol University has set up a special option within its Master of Education programme for trained and experienced teachers in language and learning.

From next year, students will be able to do research and course work to equip them with a fuller understanding of language in education.

The course will be open only to properly qualified teachers and will involve a dissertation, and some field work.

The course planners say: "In addition to studying related aspects of linguistic theory, students will explore the role of language in education including the development of language abilities and teaching, use of and attitude to language."

Students will also be given some experience of carrying out research in this field in the context of the Social Science Research Council, into the development of spoken and written language skills at home and at school.

Students who satisfactorily complete the course will have acquired an understanding of the theoretical and practical foundations of current work in language development.

## The classical connexion

Three new degree courses are to be introduced at Newcastle upon Tyne University in October, 1976.

The Faculty of Arts is to offer two new BA Joint Honours degrees: one in English Literature and Latin and the other in English Literature and Greek. Both courses include study of the connections between English and Classical literature and allow the student considerable flexibility in the choice of options.

A new BSc Single Honours course in surveying science will be introduced which will permit study to more depth than is possible in the case of the existing joint honours degree which involves the study of a second subject.

New areas of study additional to the existing joint honours syllabus include: advanced geology and photography, postgraduate astronomy, offshore surveying, advanced cartography, land of property and aspects of land planning and survey management.

## Race finds a place

A course in race and community relations has been approved by Bradford University's senate and will be introduced at the university this autumn.

Initially leading to a diploma either by one year's full-time study or two years' part-time study, the course is open to graduates with certain prior experience in a relevant field or non-graduates with appropriate training.

An MSc degree may be obtained after completion of the course and the submission of a dissertation.

## WALL HALL COLLEGE OF EDUCATION

ALDENHAM, HERTFORDSHIRE

Applications are invited for the following courses:—

### 1. DIPLOMA IN EARLY CHILDHOOD EDUCATION

This one-year full-time course is principally concerned with the psychology of early childhood, including child development, and the philosophical analysis of concepts associated with the education of young children. It offers an opportunity to study the latest research findings and take part in the important theoretical debates occurring within these areas.

The course will appeal particularly to teachers of children below the age of seven who wish to bring themselves up to date with new curriculum ideas and developments. It is suited also to teachers who may contemplate moving into work with younger children from other areas of education, and to teachers wishing to proceed to Healthship or Advisory posts.

### 2. CERTIFICATE IN THE EDUCATION OF DEAF AND PARTIALLY HEARING CHILDREN

A one-year full-time course open to qualified teachers, normally with a minimum of three years' teaching experience (but consideration will be given to others not fulfilling this requirement). The course covers theoretical and practical aspects, with extensive experience in schools throughout. Many visits are arranged.

### 3. TEACHING IN THE MULTI-CULTURAL SCHOOL

A one-term full-time course (Spring Term, 1977) for experienced teachers. Approaches adopted include seminars, lectures, tutorials, individual study and practical workshop sessions, supported by a range of appropriate visits.

All courses are under the auspices of the Cambridge Institute of Education and are recognized by the D.E.S. for secondment. Application should be made as soon as possible to the Principal, Wall Hall College, Aldenham, Watford, who can provide further information.

## Dundee College of Education

## DIPLOMA IN ADVANCED STUDIES IN EDUCATION

The college invites application from teachers, lecturers, advisers and community educators having not less than three years' teaching experience for the one year full-time course leading to the Diploma in Advanced Studies in Education commencing in October, 1976. The course is designed to give in-depth study and practice in one of the following fields:—

1. Guidance and Counselling
2. Curriculum Development
3. Organization and Management
4. Community Education and Leisure

To addition a common element course in Educational Studies is taken by all course members.

Full details and application forms can be obtained from: The Assistant Principal (In Service), Dundee College of Education, Gardyne Road, Broughty Ferry, Dundee, DD5 1NY.

## Eastbourne College of Education

(EAST SUSSEX COLLEGE OF HIGHER EDUCATION)

The following courses are offered at the College which is to merge with Chelsea College of Physical Education and Seaford College of Education to form a new College of Higher Education:

New B.A. Degree Courses: ENGLISH (major) with an associated minor in Art, History or Music.

HISTORY (major) with an associated minor in Art or English.

EUROPEAN STUDIES (French), courses in French, Geography and History. It is expected that other major and minor studies will also be offered from September, 1976. Further details of these new courses will shortly be available.

B.Ed. and Certificate in Education. Main study areas offered are: Art, English, French, Geography, History, Mathematics, Music, Natural Sciences and Religious Studies.

Postgraduate Certificate in Education. A one-year course for graduates and those with graduate equivalent qualifications who wish to train as specialist Secondary School Teachers of French, Mathematics or Physics.

The Education of Handicapped Children. The College offers a one-year full-time supplementary course leading to the Sussex Certificate in the Education of Handicapped Children.

Eastbourne College of Education is a constituent College of the University of Sussex College of Education. The degree are validated by the University. Students who complete satisfactorily two years of the three-year course may be awarded a Diploma in Higher Education.

The College is within a few minutes' walk of the sea in a very pleasant area of the foot of the South Downs. As a major resort Eastbourne has excellent social and cultural facilities, and both London and Brighton are easily accessible.

Enquiries about the degree courses and future developments should be addressed to the Principal (EWG), Eastbourne College of Education, Oarley Road, Eastbourne, East Sussex, BN20 7UN.





At this time, with cuts being imposed, we do indeed have an opportunity to "put our house in order" and achieve more fully the educational objectives originally set. We are in danger of contriving an over-qualified population as increasingly develop as institutions producing for "upmarket" consumption.

**Roy Bailey**  
**Stuart Bentley**  
**Michael Harrison**

*Roy Bailey is coowner of the Cow Structure Project at Sheffield Polytechnic, and Stuart Bentley & Michael Harrison are members of the polytechnic's development and applied social studies.*





The Times (London) Room 541  
Tel. 202 6386786 National Press Building  
Washington D.C.

## Senate probe uncovers major loans scandal

A Senate inquiry has revealed that mismanagement and fraud in the administration of student loans has cost the Government millions of dollars. The House Education and Welfare Committee kept such records that in the past four years it has paid out vast sums in bogus loans and unnecessary insurance in private lenders.

The inquiry, now drawing to a close, was prompted by a major scandal in California, where the owner of a string of private colleges obtained over \$6m in loans for his students, sold them to other financial institutions and then went into liquidation.

Apparently the owner, using the false name of Fred Peters, bought the now defunct Automation Institute of Los Angeles, and set up a chain of five "West Coast Schools". He then advertised for students, particularly blacks and Spanish speakers, as it was easier to get loans for minority groups. He applied for \$6m in loans, keeping at least \$300,000 for himself and closed the schools.

Mr Peters was subpoenaed to appear before the Senate committee last week, but two days before his testimony could be heard he fled his back and could not travel. The regional HEW office in San Francisco had refused to testify on the grounds that he would incriminate himself. He has since resigned.

The scandal has been magnified by the Government Accounting Office, which last week attacked HEW for its financial mismanagement. The GAO said records were

in poor that it was impossible to find out how much money the Government was losing from its \$8,800,000 student loan programme.

Under the system, students are lent money by approved lenders—usually banks or colleges—who are insured by the Federal Government. If the student later defaults on his repayments, it is up to the lender to try to reclaim the money. If this is impossible the Government repays the lender.

The GAO found in a random sample that in 96 per cent of the cases where the Government had reimbursed a lender, the lender had made no effort to claim the money from the defaulting student.

The hearings have neatly summarised HEW, which has now strengthened its admittedly understaffed regional offices and is installing a computer to monitor student loans—though this will not be ready for another 18 months.

It has also audited 25 of the colleges making the largest number of loans and drawn up strict rules for institutions taking part in the scheme.

One repercussion is likely to be a move to stop privately owned colleges being allowed to make Government-insured loans and there are already bills before Congress to this effect. Earlier this year a private owned Chicago group of colleges went bankrupt leaving \$150m worth of guaranteed student loans paid out by 40 financial institutions that are now trying to get their money back.

## White House to bring back science unit

The reestablishment of a White House Office of Science and Technology, abolished by President Nixon in 1973, came a step closer last week when President Ford appointed two advisory groups to plan for the new organization.

A bill to set up the Science Office as part of the President's executive office was passed in the House of Representatives earlier this month, and the Senate is almost certain to approve.

The bill does not specifically state whether the new office should have any authority over military research and development, saying only that it should prepare an annual review of funding proposals for research and development of all Federal agencies.

## Jews 'top education league'

Jews are the "best educated Americans", followed closely by Episcopalians and Presbyterians with Catholics catching up fast, according to a study made for the Ford Foundation by the National Opinion Research Centre of Chicago.

Jews average 14 years of education, Episcopalians 13.5 and Presbyterians 12.7. The middle level of educational achievement—just over 12 years of education—is occupied by the Methodist, Catholic and Lutheran in that order. Baptists are at the bottom with an average of 10.7 years.

The study left out blacks and Spanish-speakers because so much research has already been done on them. The report said differences in income, educational and occupational achievement did not necessarily prove discrimination. For instance, Irish Protestants were among

## Colleges told to play stock market

Private colleges and universities should invest on the stock market if they want to avoid immediate bankruptcy, says a research report published this week. They should not spend more than 5 per cent of their endowment each year, ploughing back the rest for reinvestment.

The report, by a New York research foundation, Twentieth Century Fund, cites the conclusion of the Carnegie Foundation earlier this year that financial difficulties would force one in every 10 private colleges to shut down, merge or consolidate within the next five years. It urges trustees to decide what they want their institutions to do in the future.

## Heavy enrolment in California

The faculty to find subtle work has been a task for the state university system in California. The enrolment of students entering or returning to universities and colleges in California this year.

The nine-campus University of California enrolled 128,478 students this autumn, 104,000 or 4.7 per cent more than last year. A rise of less than 2,000 had been predicted. The 19-campus State University and College system enrolled 311,300 students, 17,768 or 5.8 per cent more than last year. Here, a rise of 2 per cent, about 5,000 students had been forecast.

## \$700,000 link for sciences and arts

from Ian Anderson

STANFORD The National Endowment for the Humanities has made a \$700,000 grant to San Francisco State University to launch an ambitious five-year programme aimed at promoting closer links between the sciences and the humanities.

This academic year has been set aside as a planning year for the programme, which has been called Next. Team teaching of 10 undergraduate courses will start next year. Two lecturers—one from each discipline—will teach each course.

By 1980, 18 courses will be taught, involving a staff of 36 lecturers. Initially, the courses will be available as options for those enrolled in the sciences or in arts; later the courses will be able to be taken as a major area of study for a degree.

The grant is the first made as part of a new NEH policy to encourage greater understanding between the scientific and humanistic traditions. "It can be regarded as a stimulus of an experiment," the director of the programme, Professor Michael Gregory, professor of English, said. "The NEH has said that it will award its another \$300,000 if we can raise \$150,000."

"The course will be a history of ideas," he said. "We want to keep from being a pure curriculum. You don't need a course to tell you that pollution endangers health or that the bomb should be banned. That can be argued in one meeting."

## Washington chases petrodollars

CAMBRIDGE, MASS.

As a result of contracts signed this year, the American-Iranian educational cooperation business is booming, one of the few bright stars on an increasingly dismal financial horizon for US higher education.

The most dramatic deal concluded recently was that between Georgetown University, Washington, and Ferdowsi University in Meshed, eastern Iran. Under this five-year, \$11m agreement, American professors will help teach economics and other subjects.

Georgetown has been collaborating with the University of Pennsylvania for years, and this cooperation has served as a prototype for the new agreements which have followed the upsurge in oil earnings since 1973.

Harvard University has negotiated a \$400,000 agreement to help establish a graduate-level university for training professors in a province north of Tehran. The planned

## Harvard boosts its reserves

Harvard University increased its endowment fund last year by \$1.32 billion according to the university's annual financial report. This represents a 13 per cent increase over the previous year's \$1.19 billion endowment. The rise in the value of the endowment marks a significant reversal of the 16 per cent drop during the previous fiscal year.

The Harvard Management Corporation, the investment group handling the university's portfolio, attributed the rise to endowment

## Big business pays 8.5pc more

Corporate contributions to higher education rose by 8.5 per cent in 1974 over the previous year. The Council for Financial Aid to Education estimates that in 1974, business and industrial corporations in the United States gave a total of \$445m to higher education.

But the rise in corporate profits—14.7 per cent—outstripped the rise in gifts to higher education. Based on a survey of 799 major corporations, the annual calculator that corporate profits rose from \$122.7 billion to \$140.7 billion during the same period.

## Middle classes benefit most from new aid policies

from Angèle Stant

CAMBRIDGE, MASS. Despite the soaring cost of higher education, many colleges this year have increased their financial aid to students and, under new guidelines, parental contributions have been substantially reduced. Middle-income families, who have traditionally been worse off in terms of the aid granted to their children, now the main beneficiaries from these new guidelines.

In the past six years, tuition and other fees at private and public colleges have risen by nearly 50 per cent. Middle-income families have been in the position of being too prosperous to qualify for financial aid but not rich enough to afford the hike—containing \$6,000 a year in some universities.

To help these groups, the College Scholarship Service, the division of the College Board that sets financial aid guidelines used at many institutions, has drastically liberalized the formula for determining the amount parents are expected to provide.

For instance, a \$20,000 a year family with three children, of whom one is applying for financial aid for college, would have had to pay \$3,190 towards the costs last year. This year, the same family would have to pay only \$1,630. And with an annual income of \$28,000, the maximum contribution would be \$4,310, instead of \$6,330 last year.

However, although about \$6.1 billion worth of financial aid is available this year for college students, that amount falls short of the total estimated need by about \$2 billion. To compensate for this, some colleges are now making more scholarship money available for students.

Bennington College, for example, which, with its annual \$6,780 cost per student has the highest tuition and board fees in the country, has increased its student aid budget by 11 per cent this year. Twenty per cent of its students now receive aid, and at least 90 per cent of students' needs.

The amount which each family pays is determined by a comprehensive accounting of family income, assets and liabilities. Students are also expected to contribute towards the cost of their education. They are asked to allocate 35 per cent of their assets plus a portion of their summer earnings towards their education.

The difference between the amount provided by student and parent and the total cost is the amount that the financial aid officer attempts to make up with scholarships, loans and student jobs.

The main sources of financial aid available to students are: various Federal funds, distributed by the colleges; Federal Basic Educational Opportunity Grants, for which students must apply directly; if their parents earn less than \$12,000; loans under the Guaranteed Student Loans Programme; and various State and National Scholarships which depend both on merit and on parental income.

Faculty of arts, Tehran University.

Reza Shah Kesh University has appointed a Harvard professor to serve on its governing board, as well as professors from the California Institute of Technology and Princeton. The university will have 500 students and its administration will be modelled on Harvard's.

The University of Wisconsin at Green Bay will help another Iranian university develop instructional materials and test-tech the materials in Iran. Other contracts, all for less than \$2m apiece, involve Stanford University, which will help to establish educational television, MIT, which is training Iranian nuclear engineers, and Georgetown University, which will train managers.

## Columbia may shut colleges

from Thomas Cahill

NEW YORK Haunted by financial difficulties, Columbia University, which recently put \$5m of its property on the market (THESE, October 31), continues to look for ways to cut costs—the closing of some of its colleges is increasingly a cause of concern.

Dr Peter Pouncey, dean of Columbia College, has proposed that the schools—Barnard College, the School of General Studies, the College of General Studies, the School of Professional Studies and the School of Engineering—be merged into a single entity.

Administrators at both Barnard and General Studies are vigorously opposing Dr Pouncey's proposal. Barnard, for example, has just appointed a new president, Dr Josephine Matfield, who is well known as a competent manager of finances. Barnard, which last year had a deficit of \$35,000, is facing a deficit of several hundred thousand dollars.

## Bankrupt fear as civil war shuts AUB

from John Munro

BEIRUT The civil disorder that has plagued Lebanon for the past six months has forced the American University of Beirut to suspend classes, at least until January.

The university's president, Samuel Kirkwood, originally planned to open the academic year on schedule, on October 2, and 3,700 students arrived for preliminary registration.

However, as the violence increased, it became clear that the possibility of opening—even for a short time—intensified programme—was remote.

Meanwhile, the suspension of classes at AUB could worsen the university's already precarious financial position. The university entered the 1975-76 academic year with a projected deficit of \$4m. Last summer, the university announced plans to cut or at least 33 per cent, or \$11m, from its budget by mid-1980.

Officials hoped to cover the 1975-76 deficit by selling part of its picturesque campus and by increasing tuition fees. But these plans have been hampered, and the most optimistic estimate for student enrolment—assuming the university is able to open at all—is 2,500, about half of the number enrolled during the 1974-75 academic year.

The most conservative estimate is that, should the academic year begin in January with 50 per cent of the regular enrolment, the deficit will reach \$7m.

Beyond next January, the only hope for the future of the university may be a substantial increase in financial aid—either from Arab countries or from the United States. However, the Arab countries have shown reluctance to provide funds for the university and have preferred instead to support their own national universities. The United States now provides the university with about \$6m a year through the Agency for International Development, but with growing concern about foreign aid, few observers expect that figure to rise significantly.

Whether new investments from the Arab or the United States will save the university in its present form will be largely dependent upon the nature of the political settlement in Lebanon after the fighting is over.

The university has followed a non-political path in the midst of the fighting, but it has aroused suspicions of both left and right, Muslim and Christian, with each group accusing it of supporting the other.

Once the decision was made to suspend classes at least until January, most of the students who were not natives of Lebanon returned to their own countries. Faculty members were placed on "enforced, extended summer vacations" and many of them moved their families to the safety of nearby countries.

The university was founded in 1866 as the Syrian Protestant College. It adopted its present name in 1920.

West Germany Student growth slows, but more go for 'relevance'

by Günther Kloss

Latest official statistics show that for the first time in many years the rate of increase in the number of students registered at universities, comprehensive universities, colleges of education and advanced vocational colleges has slowed down.

In the winter semester 1974/75 there were 788,442 students, 55,543 or 7.6 per cent more than in the previous year. While this increase is massive in absolute figures and once again exceeds official forecasts it nevertheless compares unfavourably with the 10.8 per cent growth from 1972/73 to 1973/74.

Over two-thirds of all West German students, 533,000, were registered at universities in 1974/75. This figure includes several thousand undergraduates reading for a degree in education at universities in Bavaria, Hesse and Hamburg. They would be attending separate colleges of education in all other Länder.

The total university figure also includes over 39,000 students following academically oriented—courses to practice orientated—courses at the comprehensive universities of North-Rhine Westphalia, Hesse and Bavaria; the only Länder where this type of institution exists.

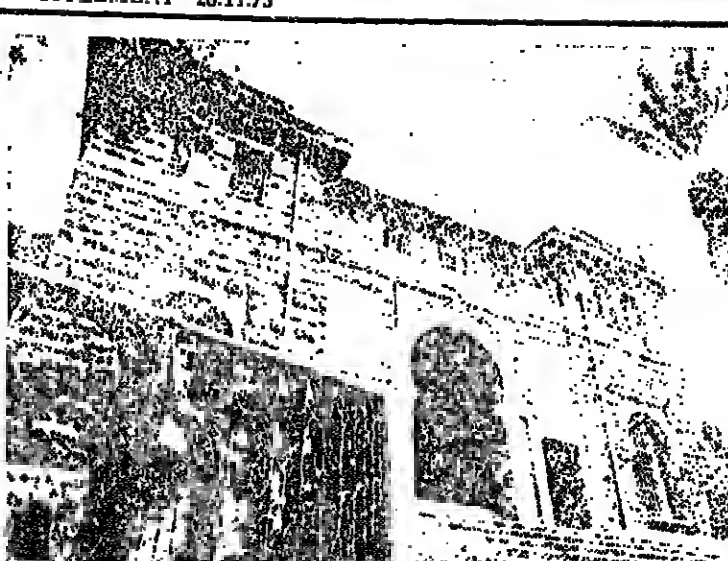
South Africa Prison for white law lecturer

by Joan Brickhill

A senior law lecturer at the University of Natal in Durban, Raymond Suttner, has been sentenced to a half-year's imprisonment under the Suppression of Communism Act for his role in the activities of the South African Communist Party.

Dr Suttner, who is white, pleaded guilty to taking part in the activities of the South African Communist Party, and to undermining and obstructing others in the promotion of the party's aims. He was also found guilty of being a member of the party.

These include higher minimum



Main gate of the American University of Beirut

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## Budget hammers home austerity message

from George Morgan

NICK Austerity is once again the order of the day for French universities. The 1976 higher education budget, approved by Parliament last week, plans an increase in spending of only 15 per cent over 1975. This will bring higher education expenditure to 1980m, excluding salaries.

The 1976 budget for university maintenance. This will account for over 180m, an increase of 18.2 per cent. In contrast, spending on new equipment and new building projects is down by 9 per cent and 7 per cent respectively.

One of the major problems to emerge from this year's budget debate was the increasing burden being placed on university finances by auxiliary teaching, technical and administrative staff, paid for directly from university maintenance grants. Normally university staff in France have civil servant status and are paid from a separate budget held by the Minister of Finance.

In recent years, however, more and more auxiliaries have been taken on, particularly in science faculties, in an effort to ease the increase in student numbers. It is now estimated there are between 10,000 and 15,000 auxiliaries in universities throughout the country. In some establishments they account for 40 per cent of all staff.

As university grants divide and as universities seek to make urgent savings, many of the auxiliaries are in danger of losing their jobs. Under considerable pressure last year M. Jean-Pierre Soisson, the Secretary of State for Universities, agreed to intervene. As a first gesture the Minister has now announced that auxiliaries are to be paid out of the same budget at an estimated cost of 66m.

An extra 113m will also help to supply more and bigger student grants as part of M. Soisson's plans for a swing from indirect to direct aid.

However, the increase does not offset recent cuts in indirect subsidies which have led to a 30 per cent increase in the cost of student meals and a 50 per cent increase for student accommodation.

Paris VI, France's largest university and Europe's biggest scientific and medical research centre, is on the verge of bankruptcy. As deputies met last week to approve the 1976 budget for higher education, the 35,000 students and 4,200 teaching and research staff organized a one-day strike against the university's current shortfall of 1.5m. M. André Herpin, president of Paris VI, said that the university would be forced to close its doors if the Government did not increase its annual 66m grant.

Earlier, the university council had taken on unprecedented steps by inserting a half-page advertisement in Le Monde, France's leading daily newspaper, to protest about the "massacre of research" at Paris VI. According to the advertisement the amount of cash available for the purchase of vital equipment and material has decreased since 1971 from 11.75m to 1.25m. As a result many research teams have already

had to curtail their activities and there are now plans to suspend all post-graduate research programmes. M. Herpin attributed the university's deficit to rising costs. Domestic fuel has increased by 45 per cent this year and extra materials needed for experiments had doubled in price.

Ministry officials, however, blame poor university management. In particular it is claimed that Paris VI has taken on too many auxiliary workers, paid for directly out of the university maintenance grant. At Paris VI these employees cost the university an annual 2.3m, far more than this year's shortfall.

In the budget announcement Paris VI has been allocated an additional 500,000. Though falling short of the 1.5m required by the university it is hoped that the extra cash will provide an incentive to the university authorities to tighten up their financial organization.

Other Paris universities, notably the medical school at Paris VII and the science university at Paris Orsay are currently experiencing similar problems to Paris VI.

## Open College plan floated

from Peppy Barlow

Proposals for an institution closely resembling the "Open College" suggestions which have been made in Britain are currently under consideration by the National Council for Educational Awards as part of its overall strategy for the future development of non-university higher education.

The NCEA proposals, which are being examined in detail by one of its sub-committees, envisage that qualifications up to and including degree level could be acquired by students on the basis of accumulated credits, taken in the student's own time and possibly at a variety of existing colleges.

Unlike the British Open University, the NCEA scheme does not include any radio or television component. Quite apart from the fact that the Government has found it impossible to raise the money for even a modest school radio service, pressure for a university of the air has been sharply reduced by recent reorganization which has attributed the colleges of education to the existing university structure and which has ensured that, from next

year, primary teachers will leave with BEd university degrees. In the past, the Irish National Teachers' Organization was one of the main sources of such pressure, and on occasion organized functions to which both the Minister for Education and Open University personnel were invited. Successive ministers, while always ready to accept the invitations, consistently ignored such blandishments on the grounds that an Open University was—and still is—a low priority in Ireland.

Some people living in the Republic, notably in areas on the eastern seaboard where reception of BBC television is normal, are thought to have registered for Open University courses, using accommodation addresses in Northern Ireland. But they do not amount to more than a handful and certainly do not constitute a major pressure group.

The NCEA proposal would require an amendment of the Government's decision of last December to strip the council of its degree-awarding function. But as this is an area in which the universities are not likely to be involved, no serious problems are likely to arise.

Existing institutions such as the regional technical colleges would probably be the bases for an accumulated credit degree system—a measure which would head off pressure from individual RTCs for enhanced status to enable them to cooperate with adjacent universities, while at the same time satisfying the need for a system with a wide range of student options.







# BOOKS

**Tinged with practicality**

## Picture poetry

## A very provincial classic

### Harriet Taylor

**David Dalches**

## Platonic errors

The essay abounds in valuable insights from the persuasive symbolic identification of Sabrina in *Comus*, the witty epigrammatism of the first stanza outlining the technique for success in a kind of comic novel climbing, Milton's *Peruville Lost* by contrast is essentially the Anatomy of Failure" to the ingenious parapsychiatric investigation of the protagonists of *Paradise Lost* which can transmute our own accumulated psychic self-estimates of the Platonic Ideal contemplating itself to the exclusion of all else".

It is a quirky and original book, and its asides—for example, the uppercut impudently offered to Stanley Fish and the "noleadful" provides that Milton wrote his poem to purge his horrors of error: if God could not do this as Milton thought, what blasphemy would it be for Milton: to expect to do better!"—are stimulating and subtle.

R. D. Bedford

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## BOOKS

## The edifice tells all

The Architectural Interpretation of History  
by John Glegg  
A. & C. Black, £8.50  
ISBN 0 7136 1559 1

John Glegg has devoted much of his career to the history of design and attempts to reform industrial design in the twentieth century. *The Architectural Interpretation of History* represents another side of his interests—archaeology and the history of architecture. This book is based on the study of buildings through the ages as evidence of the character of succeeding civilisations—evidence which is so often more potent and poignant than any documentary records. In fact, the book consists of a series of case studies into the buildings of the past, working through from the Egyptians to the present day.

In each chapter, Glegg summarizes the quality of the civilisation from the evidence of its remaining buildings. He shows how the eye can interpret subtle cultural differences in the varying forms of architectural detailing and construction. The fixed repetitive canons of Egyptian society are reflected in the refusal to make use of new structural developments, such as the arch, which was used only in a subsidiary way. On the other hand, the practical efficiency of the Romans,

and their desire for dramatic and autocratic monuments allowed them the greatest freedom to develop radical new structural devices, in order to build high and vast. Similarly, the effect of medieval warring, with its scent of fear, but also its class social ties between lord and vassal, is traced in the architecture of the Romanesque and Gothic styles. As a historical framework, Glegg makes extensive use of the panoramic table of civilisations in *The Revolutions of Civilization* by W. M. Flinders Petrie (1922).

Although Glegg's scholarship is up to date and deep, the style betrays the generalising attitude of the Petrie or Toynbee generation. The aim is always to draw the general historical lesson, with an eye to present-day predicaments. It is a criticism of much contemporary historical writing that authors are reluctant to draw attention to the contemporary relevance of what is being studied. Glegg has reached the confident stage of one who has seen much and pondered deeply, and is ready to pass on his conclusions. Consequently, his approach to the detailed description of buildings and periods of history, as well as a framework of critical and evaluative commentary (often in the form of asides) which draws general conclusions and makes comparisons with contemporary buildings and society. For instance, the slow rebuilding of London after the blitz is compared

unfavourably with the resolution and ingenuity of Wren's reconstruction after the great fire of 1666:

When such delays are prolonged, the civilisation that is resigned to living in ruins may be on its way out or in process of drastically changing its character.

The book reveals Glegg as an extensive traveller, who has looked long at the buildings and remains of Europe. His descriptions are vivid and perceptive. He takes the trouble to set buildings into their proper context, aware of the dangers of false interpretation when complete fragments are studied in isolation. The book is plentifully illustrated with line drawings, by Hulme Chadwick, Meunier Stafford and Raymond McGroth (among others), and there is a section of photographs at the end. One criticism of the book, for those who have not seen all the ruins and buildings discussed, is that the author relies heavily on his verbal descriptions, rather than making precise and direct use of the illustrations.

In the later portions of the book, Glegg finds himself in something of a quandary on the issue of conservation. As a committed "modernist" (albeit a moderate one), he deplores the "nostalgia" for the forms of the past and the failure to create the new forms appropriate to new conditions. But at the same time, as archaeologist and historian, he sees evidence of

declining standards of craftsmanship and the end of the organic relationship between buildings and society. His attacks most pitilessly on architecture as inhuman and fatally contaminated by what he calls "social engineering"—the use of planning by architects to try to force people to live in new, programmed and unaccustomed ways. If we understood history better, suggests Glegg, we would not rely slavishly on the external forms of a nostalgically remembered past, but rather on the internal "revivals". But neither would we cut off our roots in the traditional skills and practices of the local builder and craftsman. A healthy society is one which can face up to the need for change but which can learn from the past and continue the best of the old.

*The Architectural Interpretation of History*, then, serves two main functions. There is a beautifully written and scholarly introduction to the architecture of Europe, mixing detailed observation with panoramic generalization, and there is a framework of critical analysis aimed at present-day attitudes, drawing the moral for contemporary architects and planners. Let us hope that the moral is learned and that the effect is to instruct as well as delight the reader.

Tim Benton

## Church rifts

Jerome: His Life, Writings and Controversies  
by J. N. D. Kelly  
Duckworth, £10.00  
ISBN 0 7136 0800 2

The last decades of the fourth century and the first decade of the fifth century raised problems which were new for the Christian Church. In the course of the fourth century Christianity had become accepted by the Roman establishment and Christians, in turn, had come to accept the values, the culture and the structure of late Roman society. The era of the persecutions and of the martyrs, the pre-Constantinian world of Christian witness borne by a suspect and often unpopular minority, were becoming a distant recollection. The new problems arose from the Church's very rapid assimilation of, and assimilation by, the secular world and its culture. What was the meaning of Christian perfection in this kind of Church, and in this kind of society?

In one way or another, this was the core of the issues at stake in most of the controversies in which Jerome found himself involved during his long life (he died at the age of nearly 90 in 420 or 421). Could classical culture be reconciled with a Christian's biblical faith? Could the married life provide a framework for the life of prayer? Was any authentic Christianity conceivable without asceticism? Was Christian perfection available to men through the exercise of their will? Such were the questions which arose between Jerome and his many adversaries.

One of the things that the great rifts of the period opened to the Church. Only one major field of Jerome's interest falls outside the circle of problems concerned with Christian perfection, and it is a greater part of Jerome's literary achievement. It is his almost constant concern for the text and the meaning of the scriptures, pursued through the long series of translations and commentaries in which he was at work for most of his active life.

Dr Kelly has mapped the course of Jerome's life and his scholarly work, and this kind of study is as often interrupted by, as well as often interrupted with, his controversies. He has followed Jerome through each of his, usually monotonous, debates with discerning perception and a fine sense of sympathy, and he has brought to the reader's attention the subtleties of his thought and his style.

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The book opens upon a period of the fourth century, when the Church was in a state of flux, and when the old ways of thinking were being challenged by new ideas. Jerome was a man of his time, and his work was a reflection of the challenges he faced. His life was a struggle to find a way of living that was both Christian and compatible with the world around him. His writings were a record of this struggle, and his controversies were a part of the process.

Jerome's life was a long one, and he lived through many of the great changes of the fourth and fifth centuries. He was a man of great energy and great intellect, and his work was a testament to his faith and his commitment to the Church. His life was a model for many, and his work is still a source of inspiration and guidance for Christians today.

Bernard Capp

## CALCULATORS



## Engines that make it all add up

John Dubbey

The unsuitability of early numeral systems for purposes of calculation coupled with the relatively late development of adequate writing materials ensured that the need for calculating aids became obvious from a very early age.

There is worldwide evidence that primitive devices to assist calculation existed in ancient times, and it could be argued that their presence helped to clarify basic numerical ideas such as the concept of the radix and suggested the way ahead for the evolution of more sophisticated number systems. Devices such as knotted strings, tally sticks and complex finger reckonings were used, but the first major aid to calculation was undoubtedly the abacus.

Most early civilisations were familiar with some type of abacus and it would appear that three basic types emerged: the least sophisticated, usually referred to as the dust abacus and known to be used by the Hindus, Greeks and Romans; consisted simply of a table covered with sand or which marks were made with a stylus and erased when necessary.

A more advanced type was the counter abacus in which stones or counters to indicate numbers were moved along lines on the table. A device used in Europe until the seventeenth century. Herodotus refers to the use of counter abaci by both Egyptians and Greeks, and three which runs through the other references can be found in the writings of Heron, Juvenal, Cicero and Lucilius. The counters are called "calculi" (pebbles) from which the verb calculate is derived.

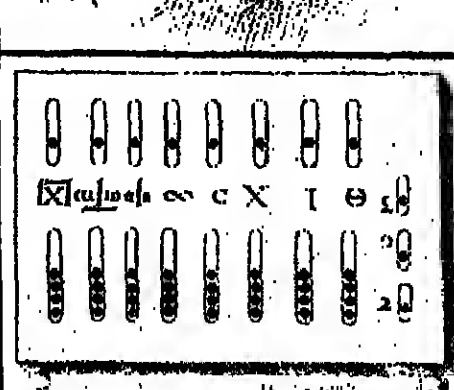
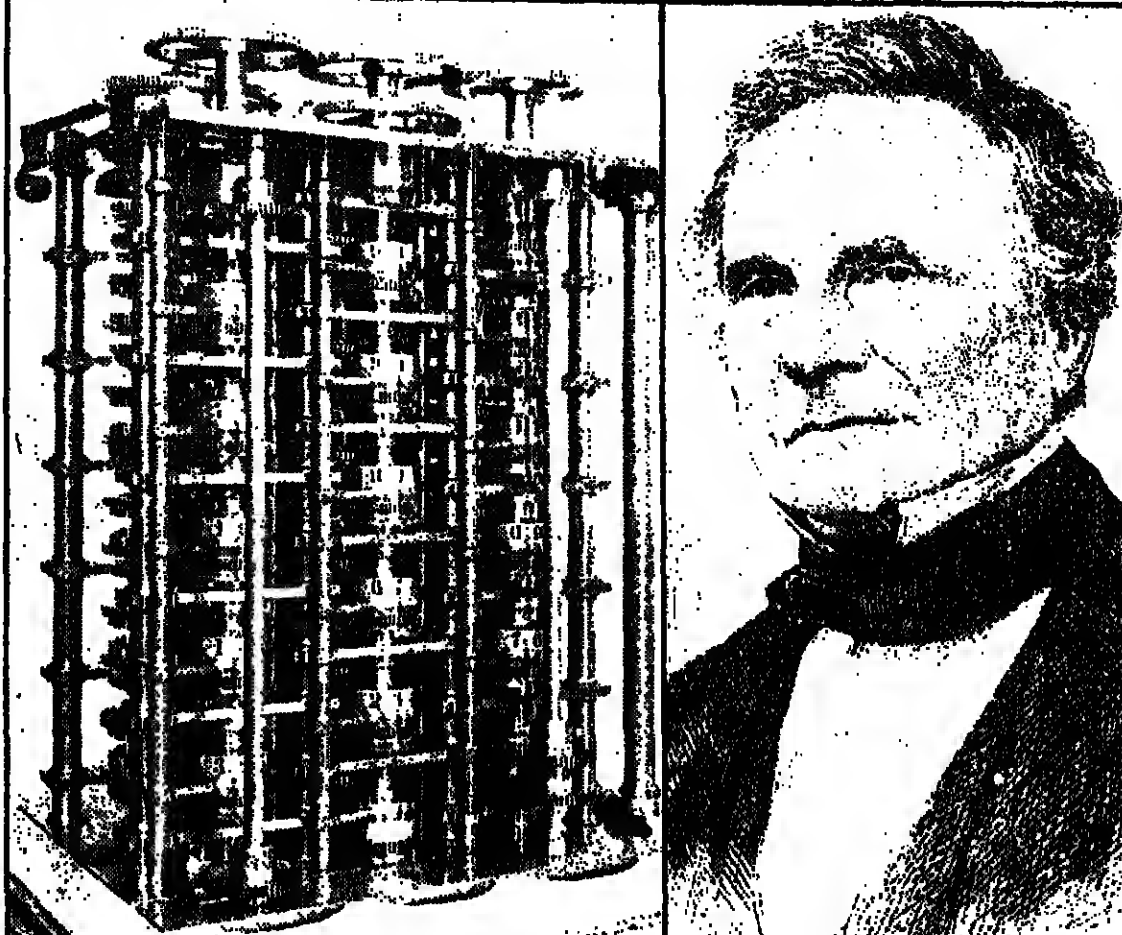
The third type consists of a frame with balls or discs moving on parallel rods or grooves and has been used extensively up to the present time. The most notable examples are the Chinese "suanpan" used from the twelfth century, and the Japanese "soroban" from the seventeenth.

Both of these divide the frame by a bar. The "suanpan" has five beads per row below the bar each worth a unit, ten, hundred, etc., and two above the bar, each worth ten, hundred, etc. The "soroban" has one bead above the bar, worth ten, and four below, each worth one. Both types can be used with a speed and efficiency which challenges modern mechanical and even electronic devices.

Further aids to calculation came in the seventeenth century, one of the most fruitful periods of mathematical development. John Napier constructed his rods of bones described in his *Robo-logia* (1617) as essentially a device for steering multiplication tables; it even more significantly was his invention of logarithms in 1614 which led to the development of the slide rule.

Gunter in 1620 was the first to construct a device using this idea. In his "line of numbers" logarithmic proportions were used to solve problems of multiplication, division, and other mathematical operations. This was a significant advance in the history of calculation.

Compensated were used to add or subtract lengths, affecting multiplication or division. This idea was improved by W. Oughtred in 1622 when he had two "Gunter's" rods along one another. A circular slide of this device was constructed by R. Bisschop in 1630 and R. Bisschop presented the idea of a slide moving between two scales in 1654. The invention of the calculating machine is usually attributed to Blaise Pascal in 1642. It is now evident that he was anticipated by Wilhelm Schickard in 1623 and Thomas (1620). Probably the greatest of all innovators in the field of calculating machinery was the English mathematician, Charles Babbage (1791-1871).



Top left, Charles Babbage's difference engine with, top right, its creator. Bottom left, a Japanese abacus and bottom right, a Roman version.

wagon wheel onto use of a train of gears linked so that each time a wheel completed a revolution, the next one turned a place to record a "carry".

As F. Hammett discovered in 1957, Schickard of Tübingen wrote letters to Kepler describing a machine he had built in 1623 capable of performing arithmetical operations. This consisted of a train of gear wheels used as an accumulator with a separate set of interconnected tables with logarithmic and trigonometric functions calculated to 20 significant figures. The task was to be performed by three sections of calculators.

The first section, consisting of half a dozen mathematical tables, including Legendre, had the task of devising suitable interpolation formulae which would be passed to the second section whose job was to break down these formulae into simple arithmetical operations capable of accurate execution by the largest section of about 90 mechanical arithmeticians.

Babbage leapt to the conclusion that such arithmetical drudgery could be performed more accurately, economically and quickly by a machine, which he set out to build. In 1823 he had completed a model of his difference engine, which he exhibited to the Astronomical Society and received a gold medal for his labours. This was, unfortunately, the only reward Babbage ever received for his work on the engines over the next 50 years.

The mathematical principle was very easy—almost as Babbage asserted, the difference equation  $\Delta^2 u(x) = C$ . To construct a quadratic function like, for example,  $u(x) = x^2 + 4x$ , whose first differences are in its apparent object to produce a string of prime numbers, one set  $\Delta^2 u(x) = 2$  and proceeded:

This process could be simulated by an engine consisting of three parallel columns, each column containing three parallel wheels with 10 teeth graduated from 0 to 9 representing units, tens and hundreds. Initially the three columns would be set at 4, 1, 0, 2, respectively, the third being fixed at 2. Sequences had to be mechanical so that the third column added its contents to the second, the second to the first and then for the process to be repeated as many times as desired. Babbage's model did work, and he found that the engine could calculate the value of  $u(x)$  in 2 minutes and 30 seconds.

Babbage now made the reluctant

and somewhat unfortunate decision to build a proper difference engine with seven columns of differences and up to 25 wheels on each. He realized that the engine would be responsible for the actual construction of all the parts, as the current quality of precision engineering was entirely insufficient for his purposes. At the same time he could see that if the engine worked it would be capable of producing poly-nomials of the sixth degree and constructing any set of tables to over 20 significant figures.

Unfortunately it never came to fruition. The story is one of technical problems of unforeseen magnitude. Government grants of up to £17,000 supplemented by Babbage's own substantial means, a total of £20,000 in 1834 resulting in the abandonment of the building, relocation first by Peacock's administration of 1842 and then by Babbage's in 1861. The remains were deposited in Kings College, London, in 1843 and removed finally to the Science Museum in 1872.

The idea of the difference engine was adopted by the Swedish engineers G. and R. Schenitz who completed a machine, less ambitious than Babbage's, in 1843. This was exhibited in Paris and London before being purchased by an American, T. A. Babbalanza, who can observe it. Ironically the British Government, having rejected Babbage's model, eventually bought their own Schenitz engine. Other difference engines were attempted but it was found that multi-register key-driven machines which could perform the same functions.

Meanwhile orthodox calculating machines were now becoming a sound commercial proposition and improvements were being made in the design. T. A. Babbalanza, W. T. Odner and A. Burkhardt devised more compact machines which could perform the four basic operations, store the results in a counter, while the operator depressed keys. The post-Babbage calculators used a proliferation of calculating machines until by 1925, E. Martin could list and describe over 200 types of calculators.

Three basic types of office machines emerged towards the middle of the century; these were the adding-listing type capable of millions of subtraction with lists of numbers fed into the machine and answers supplied on paper-tape, key-driven machines operated directly by pressing keys, and registers to multiply, divide and transfer numbers to another register while counting and recording the number of events.

The mechanical calculators were improved by the introduction of electro-mechanical devices and these in turn have been superseded by the electronic calculators which began to appear in 1971. With the technology of single-chip LSI circuitry and the seemingly daily advances in programmable possibilities, these calculators appear to have swept all alternatives aside with the exception of the straight adding machine with print-out end, of course, the sum pon and soroban.

The author is the head of the mathematics department of the South Bank Polytechnic and honorary secretary of the British Society for the History of Mathematics.

1871. His major work the analytical engine, commenced in about 1834, encompassed much of the logical design of a modern digital computer, but the development of his other machine, the difference engine, is of more interest here.

Babbage claimed that his first thought of such an engine in 1821 was given the case that an ambitious attempt was being made to France to improve mathematical tables with logarithmic and trigonometric functions calculated to 20 significant figures. The task was to be performed by three sections of calculators.

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$u(x)$   $\Delta u(x)$   $\Delta^2 u(x)$

43 0 2

47 4 2

53 8 2

61 12 2

71 16 2

83 20 2

97 24 2

113 28 2

131 32 2

151 36 2

173 40 2

197 44 2

223 48 2

251 52 2

281 56 2

313 60 2

347 64 2

383 68 2

421 72 2

461 76 2

503 80 2

547 84 2

593 88 2

641 92 2

691 96 2

743 100 2

797 104 2

853 108 2

911 112 2

971 116 2

1033 120 2

1097 124 2

1163 128 2

1231 132 2

1301 136 2

1373 140 2

1447 144 2

1523 148 2

1601 152 2

1681 156 2

1763 160 2

1847 164 2

1933 168 2

2021 172 2

2111 176 2

2203 180 2

2297 184 2

2393 188 2

2491 192 2

2591 196 2

2693 200 2

2797 204 2

2903 208 2

3011 212 2

3121 216 2

3233 220 2

3347 224 2

3463 228 2

3581 232 2

3701 236 2

3823 240 2

3947 244 2

4073 248 2

4201 252 2

4331 256 2

4463 260 2

4597 264 2

4733 268 2

4871 272 2

5011 276 2

5153 280 2

5297 284 2

5443 288 2

5591 292 2

5741 296 2

5893 300 2

6047 304 2

6203 308 2

6361 312 2

6521 316 2

6683 320 2

6847 324 2

7013 328 2

7181 332 2

7351 336 2

7523 340 2

7697 344 2

7873 348 2

8051 352 2

8231 356 2

8413 360 2

8597 364 2

8783 368 2

8971 372 2

9161 376 2

9353 380 2

9547 384 2

9743 388 2

9941 392 2

10141 396 2

10343 400 2

10547 404 2

10753 408 2

10961 412 2

11171 416 2

11383 420 2

11597 424 2

11813 428 2

12031 432 2

12251 436 2

12473 440 2

12697 444 2

12923 448 2

13151 452 2

13381 456 2

13613 460 2

13847 464 2

14083 468 2

14321 472 2

14561 476 2

14803 480 2

15047 484 2

15293



## Alan Cane

Peter New (who has written one

Prices have probably "bottomed-out" now, and are unlikely to fall further, but advances in calculator technology mean that users will get more calculating power for their money in future. For example, it costs virtually the same to produce a simple four-function (addition, subtraction, multiplication, division)

- Starting at the left side of the problem, key in the first number.
- All possible mathematical operations are performed on the number.



\_\_\_\_\_

After the simple calculators come the five-function machines with rechargeable batteries, an important addition where a calculator is used frequently and where the cost of replacing batteries may mount rapidly. Examples are the Datamath II, the CBM GL96R and the Texas Instruments 1500. All cost in the

Programmeable calculators are the top end of the market and are virtually portable computers. There are two principal kinds, those which are programmed through the keyboard and those which use programs pre-written on magnetic cards or tape.

The management science teaching at Oxford originally covered several basic arithmetic topics in which such items as the use of log tables and the hand calculation of square roots was covered. In the late 1960s we tried using electrical calculators in the classroom, but their logic defeated the managers. To teach them how

## David Lethbridge

**Plumbing decimal point.** This feature automatically pins the decimal point where it is required. The alternative, the fixed decimal point operation, always provides a fixed (preset) number of digits after the point, and is less versatile than the plumbing point although extremely useful for repeat additions of financial figures, since the fs and pence

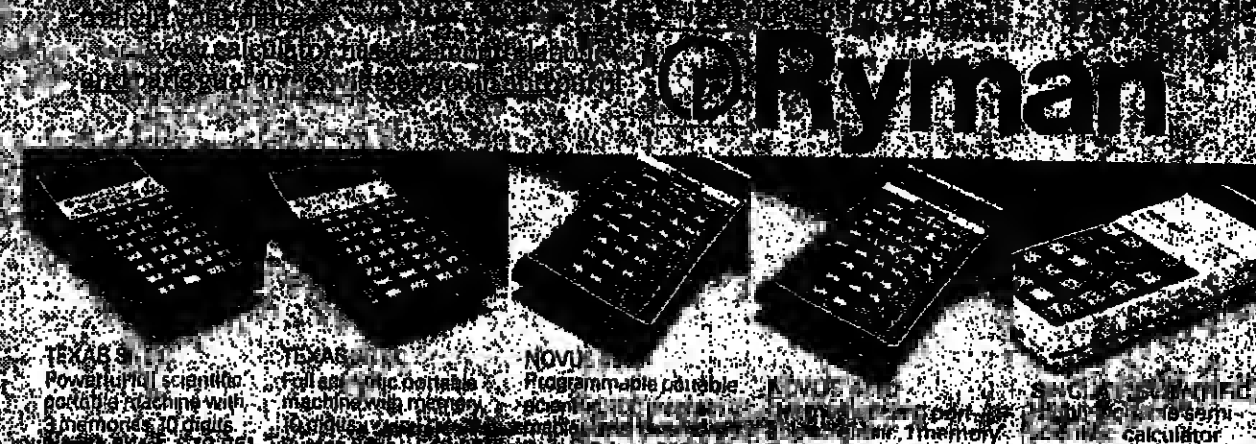
**Special Functions**—Ideally, the student of general management (as against one of the more specialized areas of management) requires a calculator which can rapidly perform two types of data manipulation:—

- (a) Statistical—including calculation of the mean, standard deviation, and regressions.
- (b) Financial—including the present value of future cash flows, and (but

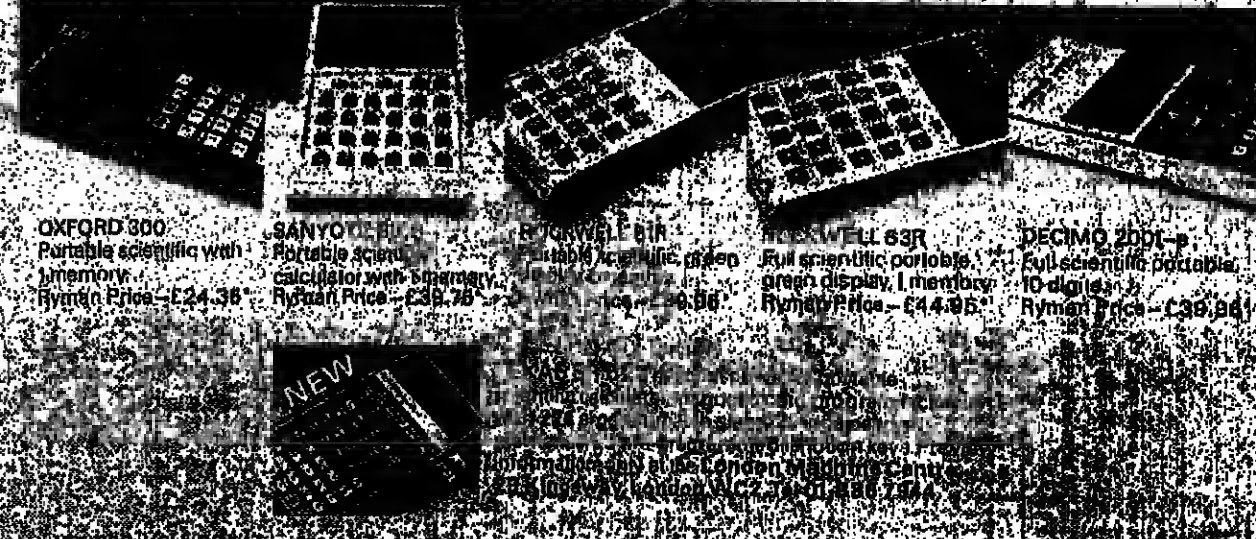
There is, as yet, no cheap general management calculator on the market which can also offer an internal rate of return capability. The Centre has recently surveyed over 50 different calculators and for readers with a special interest in this area the full report will be available in the Journal of the Association of Teachers of Management.

*The author is a fellow of the Oxford Centre for Management Studies, Oxford University.*

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